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The AMERICAN RIFLEMAN

VOL. 84, No. 1

JANUARY, 1936

N. R. A. SERVICE

LEGISLATIVE DIVISION: Looks after the interests of the shooters in Congress and State Legislatures, carries on the organized fight against unsound anti-gun laws, encourages legislation for the aid of civilian rifle practice and assists members to obtain permits to carry firearms to and from a range in states requiring such permits.

THE AMERICAN RIFLEMAN: This magazine is the official monthly publication of the N. R. A., and as such is "The Voice of the N. R. A." Non-political and non-sectarian in policy and free from commercial domination, it can and does speak freely, frankly and with authority on all shooting matters.

TECHNICAL DIVISION: Helps members with their personal shooting problems, reports in *The American Rifleman* each month practical tests and critical examinations of new guns and equipment, and gives by personal letter advice on the selection of the right gun for a specific purpose, reloading, restocking, etc.

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JUNIOR DIVISION: Provides individual and club memberships for junior shooters, boys and girls alike; conducts a year-round program of competitive and qualification shooting, and teaches Young America how to handle firearms safely and properly. No father should hesitate to support its good work.

POLICE DIVISION: Assists police departments in marksmanship training of their officers. Through the Association's far-flung contact and with the aid of experienced hands to carry on the work, this division is performing a public service which warrants the support of every good citizen.

PUBLICITY DIVISION: Endeavors to educate the American public through the public press to the fact that the man who likes to shoot is not a criminal and, although its services are intangible in character, it represents an important chain in the campaign "to make America, once again, a Nation of Riflemen."

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POWDER SMOKE

Adequate Defense for Uncle Sam— And His Nephews

CHINA, richest country in the world in man power and perhaps in natural resources, has no love for war, sets the world an outstanding example of unarmed potential power, and places its dependence upon "Nine Power Treaties," the League of Nations, and the "weight of public opinion" to defend its territorial integrity and protect its families from the rape of foreign thugs.

Ethiopia, sheltered by wide seas and almost impassable desert, morass, and mountain; busy with its own problems and seeking no conflict with its neighbors, places its dependence in the world's "police force,"—the great conference of nations in which the smallest are to receive the same even-handed justice as the greatest. Her citizens, splendid potential fighters, are saved the cost of modern armament; her mountain passes do not carry the expense of fortification.

Surely two splendid examples, these, of the theory so loudly advocated by certain groups in America. "We have millions of men who can be called to fight if necessary," say these; "we have natural resources to defy the world; we are separated from the world by oceans, by eastern and western mountains, by southern deserts, by northern lakes and forests." Therefore, according to their doctrine, we should set an example to the world, and join with China and Ethiopia in placing our trust in a great Court of Justice and the international "police" power of The League. Can it be possible that the advocates of such a plan read the daily papers? Or do they pass as "too horrible" the stories of the plight of China and Ethiopia?

Surely those sane, intelligent, practical persons who *do* read are fervently hoping that the American Government will follow through with the policy now in effect, of building and maintaining defenses on land, sea, and air that will be sufficiently respected by the world to keep international thugs from attempting to molest us. But there is bitter irony in the fact that an

Administration so keenly and practically interested in defense for Uncle Sam should at the same time permit some of its officials to use their high offices to attempt to remove the means of defense from Uncle Sam's nephews—the honored reputable citizens of the United States.

Every argument advanced in favor of disarming Uncle Sam is advanced in favor of disarming his nephews: "If you have guns you will be tempted to use them as an aggressor. If you are trained to shoot you will shoot too soon. You need no arms because the great system of police and courts of justice will protect you." Are these the arguments of pacifists seeking peace by the disarmament of Uncle Sam, or are they the arguments of theorists seeking peace with crime by disarming Uncle Sam's nephews? They are the *same* arguments advanced by the *same* type of embryo minds to support two different types of disarmament. Why, then, should they be thrust aside as silly in the case of national defense for Uncle Sam, and embraced as sound in the case of personal defense for Uncle Sam's nephews?

Lurking predators in America favor state and Federal Sullivan Laws for the same practical reason that predators outside of America favor disarmament for Uncle Sam.

Courts, international or criminal, cannot function until *after* a crime has been committed. It requires time for a predatory nation to strike, and the world can read the signs; but the predatory individual can strike without warning, and only the citizen at the point of attack can handle the defense. The police can only come later—*after* the crime!

Gentlemen of the Congress, provide well for the defense of Uncle Sam—and apply the same logic to Uncle Sam's nephews. They ask you for no appropriation, but merely to be left without hindrance of Federal law in their right to defend their homes against the enemy who is always with us—organized crime.

The **AMERICAN RIFLEMAN**

JANUARY, 1936

Chamois Shooting in the Alps

By **FRANTZ ROSENBERG**

OF STRICTLY wild mountain big game to be found in Europe today in sufficient numbers for sport, there are the wild reindeer of the Norwegian uplands—the hunting of which the writer described in the pages of the *RIFLEMAN* some years ago—and the chamois of the Alps.

In earlier days the Alps also held the European Ibex,—the “Steinbock” of the German-speaking or the “Bouquetin” of the French; and but for the efforts of the late King Victor Emmanuel of Italy who in 1821 established a small closely-guarded sanctuary for this interesting animal in the Piedmont Alps, it would have been totally exterminated.

The mountains of Spain, the Pyrenees, and the Sierra Nevada also were the home of another species of European Ibex, but I doubt if many of these are left today.

If we go still further south to the two small mountainous islands of the Mediterranean, — Corsica and Sardinia, we find the remnants of a fourth species of mountain game, the Moufflon; a wild sheep somewhat resembling the Big Horn of America. The Moufflon has lately been successfully introduced on some private preserves in the Lesser Carpathians in Czechoslovakia, where they are closely preserved and are doing well. Of recent years the writer has seen some magnificent trophies obtained from those parts.

By far the most numerous, and the animal that will probably outlast all the others, is the chamois, or “Gams” to use its Germanic name (*Antelope rupicapra*).

The chamois is really an antelope, but resembles more a small goat, and like the goat has all the attributes of the typical mountain climber, living as it does in the steepest and most broken mountains of Southern Europe.

It is found in the Pyrenees of Spain, where it is called the Isard, and all through the long chain of the Alps from Eastern

France through Switzerland, Bavaria, Tirol, Salzburg, and Styria to the Eastern Carpathians, Transsylvania, and Jugoslavia. Chamois are also found outside of Europe proper, in Caucasus and Asia Minor.

The pursuit of the chamois has always been considered one of the most arduous of sports, often entailing a certain amount of danger, and from olden days it has been enshrouded in a great deal of romance. Yet even in these days of super-accurate high-velocity rifles and telescopic sights, an old wily chamois buck is a well-earned trophy if killed by bona fide stalking on difficult ground.

A full-grown chamois will stand from 27 to 31 inches in height, and will be from 37 to 43 inches long. In weight we may say that it will seldom exceed 80 pounds, while around 50 to 60 pounds will be normal.

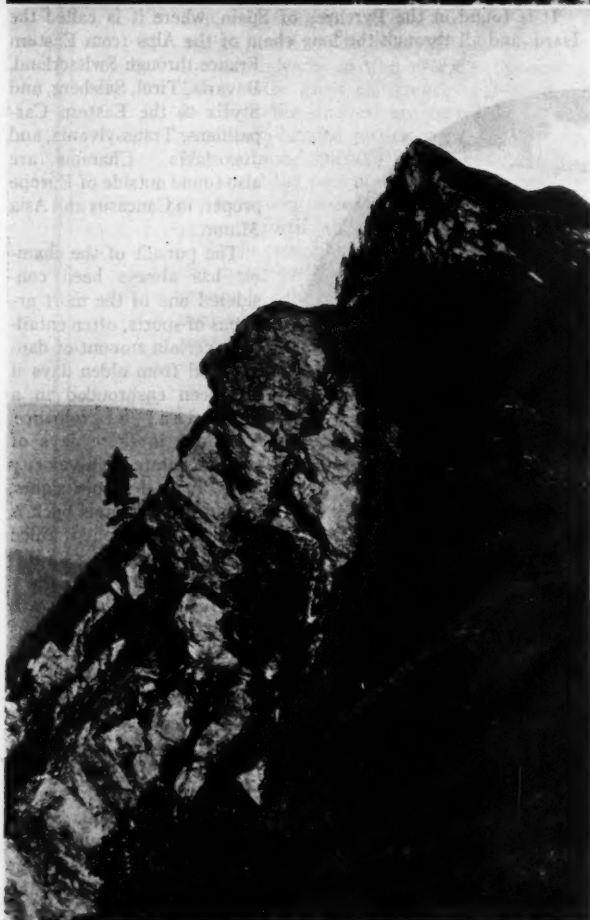
The heaviest animals and those carrying the finest horns are found in the Eastern Carpathians and Transsylvania. The shape of the chamois will best be seen from the accompanying illustrations. The coloring varies with the season, the summer coat being light reddish brown with a darker stripe along the back. The face is lighter colored, except for a band around the



**CHAMOIS TARGET, WRITER'S ELKHOUNDS,
AND "DREAM" RIFLE**



UPPER: THESE "SHOOTS" ARE HIGH-LYING ALPINE VALLEYS. LEFT: THIS MIDTER-KOPF RIDGE HAS THE FORM OF A CHISEL



eyes. The winter coat is nearly black, and is much thicker than the summer one; and along the back grows some very long white-tipped hairs, which when the buck is killed are carefully pulled out and skillfully bound together to form the much-esteemed trophy called "Gamsbart," which looks more or less like a giant barber's brush and is carried in the hat by the continental sportsmen.

Both sexes carry horns,—small black horns much resembling those of the Rocky Mountain goat, though longer and having a hook at the end. When thicker, with a more pronounced hook, this is usually the sign of a buck, though to the uninitiated it is rather difficult at a distance to see the difference.

As a trophy the chamois horn is judged according to length, thickness, and spread, a horn of 11 to 12 inches being close to the record, and anything over 9 inches long being very good indeed.

The chamois are found in small herds, but the old bucks usually keep to themselves except during the rutting season. In the summer we find them feeding high up among the crags in the early morning, while during the heat of the day they will seek the shade among the belts of creeping firs (Larchen) lower down, and preferably on the shady side of the hills. In winter, on the other hand, when the snow is deep, they go down into the woods.

The shooting season for chamois is very generous, and usually opens August 1 and lasts till about the middle of December. August is the time for stalking, which is carried on till about the middle of September, when the big bucks are harder to find. This, then, is the time when formerly were held the large chamois drives,—really a manner of entertaining one's guest and having no pretense of sport, though offering most excellent rifle practice.

In these drives the sportsmen were posted at stands fairly easily accessible from stalking paths, a small army of beaters



UPPER: A TINY HUT PERCHED UP ON THE SLOPES OF MIDTERKOPF. RIGHT: THE GAMS-FELD SEEN FROM THE NORTH

during the night or early morning having scaled the heights from behind; and these latter when the signal gun boomed, slowly drove the chamois down towards the posted rifles. The result was often an indiscriminate butchery, no picking of heads being possible. Such large drives are now extremely rare.

What may be called the climax of the season, and most cherished by continental hunters, is the rutting season, beginning about the middle of November. Now the old bucks have acquired their black winter coat and are restlessly roving the mountains in search of the does, and thus become much easier to find. Usually by this time a certain amount of snow has fallen on the upper slopes, and it is cold in the mountains. This November hunting often means a lot of hard climbing in deep snow up exceedingly steep slopes, made dangerous by snowslides. The hunter will get wet through with perspiration, and he will have to sit still, often for hours on end, on windy ridges, getting chilled to the bone while waiting for the roving buck to appear.

Having repeatedly tried this game, and having too much cold and snow in my own country to willingly go in search of it elsewhere, I frankly confess to a great preference for the summer stalking amidst the glorious mountain scenery and the profusion of wonderful Alpine flora with which at this time of the year the mountains are covered. Even in summer at such high altitudes heavy snowstorms occur, and very often thunderstorms with accompanying rain blot out the landscape. Worst of all, however is the fog, which effectually puts a stop to all hunting. I cannot help thinking the summer stalking the better sport, as it means real climbing and takes the hunter in to ground which later in the year is quite inaccessible.

Chamois hunting has for centuries been the pastime of the inhabitants of these Alpine valleys,—rulers and peasants alike, though in the case of the latter not always lawfully,





**SPYING FOR CHAMOIS IN THE EARLY MORNING.
LEFT: KEEPER HANS WITH FIRST CHAMOIS BUCK**

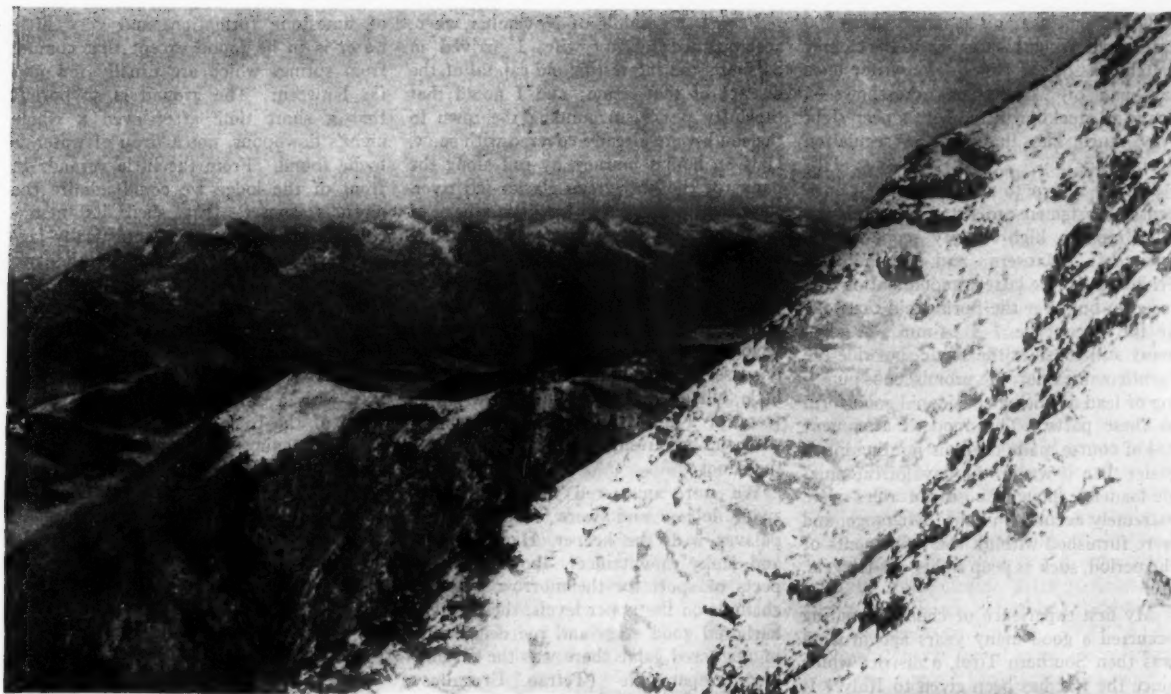
since in the old days the big game belonged to the ruling classes; but so strong was the love of the chase among the hardy mountaineers, that they braved the danger of losing their lives, which in those days was the penalty for being caught.

Even in our days, before the World War and the many resulting changes of conditions, practically all the best shoots belonged to the nobility or to members of the ruling houses of Germany, Austria, and Hungary. All these shoots were closely preserved and watched over by a small army of keepers, all of them mountaineers and keen hunters who hated the poachers and were waging a continual and sanguinary war against them; it being the custom on both sides to shoot first and ask questions afterwards.

This same attitude on the part of the keepers even today with the present democratic government is rather unique, in view of the fact that the poachers are often their own fellow villagers, or at least neighbors. As a result, however, we see that the game is yearly increasing in numbers since the war and the revolution, and in due time the stock of chamois will probably be as good as it ever was.

These chamois shoots are high-lying Alpine valleys branching off from the main thickly-inhabited valley and stretching right in towards the backbone of the lofty ranges, some of which are over 10,000 feet high, amidst glaciers and permanent snow, frequented only in summer and early fall by the peasant herdsmen tending their flocks and living in small chalets in the valley-bottom.

When traveling in these Alpine countries it is continually impressed upon one how keen an interest is taken in the pursuit of big game by the people, high and low alike; and the walls of the stately halls of the many old castles are covered with old weapons and trophies of the chase from generations of owners, the antlered heads of great Alpine



SLOPES OF THE GAMSFELD LOOKING SOUTH TOWARD DACHSTEIN RANGE. RIGHT: HANS'L AND CHAMOIS BUCK

stags, chamois, and roebucks, as well as wild boar's tusks,—in many cases most remarkable collections. And the walls of the more humble dwellings and the inns are also decorated, in a lesser degree.

Here and there outside the villages we also find the butts of the local rifle range, where the sturdy mountaineers foregather on feast days in friendly competition, many of them showing remarkable skill with their quaintly-stocked set-triggered heavy schützen rifles.

Hunting is a tradition with these people, and the ancient laws of "the noble art of venerie" are much more respected than in countries further north. In such an atmosphere one unconsciously becomes interested in old hunting lore and the history of the chase; and in this connection I cannot omit mentioning the name of that grand old sportsman of medieval days who was probably the first scientific chamois-stalker, the Emperor Maximilian (1449-1519), whose name and many hunting adventures are associated with so many places in the Alps.

There are preserved in Vienna two interesting old works illustrated with quaint woodcuts and named the *Theuerdank* and *Weisskunig*, both being indirectly attributable to the pen of Emperor Maximilian himself, and describing his many adventures in war and in the hunting field. These two works and some old manuscripts of the same time give us a very good idea of how hunting was carried on in the Alps in those days by this great sportsman and his contemporaries.

Maximilian was known to be one of the few men on the Continent who could equal the English archers in the use of the long bow, but his favorite weapon when after chamois seems to have been the short throwing-spear; and a sturdy climber he must have been to go after such nimble game with a spear! Another weapon which he was said to have handled with the greatest skill was the crossbow, either with quarrels or with a special attachment for using bullets; and it is on record that with such a weapon he killed duck on the



wing and shot chamois at ranges up to 200 yards, preferring this weapon to the clumsy matchlocks of the time. The writer once saw one of Maximilian's crossbows—a heavy all-steel bow fitted with a peep sight very much like that on the regulation Springfield.

But to return to our days, the Continental sportsmen are fitted out with the most modern high-velocity scope-sighted repeaters: Mausers and Mannlicher-Schöenauers, the latter predominating and recently built for the Springfield cartridge or the Brennecke 7 x 64-mm. A good many still consider the single-shot rifle the "gentleman's rifle," the promiscuous pumping of lead not being considered good form in these parts. This modern armament has of course made chamois hunting much easier than it was in the days of the muzzle-loaders, though those old rifles were extremely accurate within their range, and were furnished with all the refinements of the period, such as peep sights, set-triggers, etc.

My first experience of chamois hunting occurred a good many years ago in what was then Southern Tirol, a district which since the war has been given to Italy. It was on a typical peasant shoot,—that is, a shoot belonging to a number of peasants lower down in the valley, who had appointed a keeper to look after the game, and rented the shoot to sportsmen.

According to the game laws of Austria, wherever a property is of a certain size the owner or owners have to appoint one or more game keepers (according to the size of the property) to look after the game. If they do not care to use the shoot themselves they may rent it to others, but the game is a national asset which is not allowed to be destroyed wantonly. The game keepers are legally sworn, and must pass an examination showing a thorough knowledge of the game and its habits, the game laws, etc. They are armed.

In such peasant shoots the number of chamois cannot be compared to that of the large private shoots, and like most first attempts, my hunt was not altogether successful. Still, it gave me a great desire to know more of this sport, on a better-stocked ground, though the opportunity did not present itself until some years ago, when I bought what is called an "Abschuss" or right to kill a certain number of chamois bucks in a once very famous shoot in the Salzburg district, at so much per buck with keepers and lodging included. A most practical arrangement and a very common one on the Continent. If no game is killed one pays a lesser sum for the use of the shooting lodge only; but one usually will have to pay a fine for each miss, and any wounded game is reckoned as killed game; this to discourage wild shooting.

It was the middle of November when, accompanied by my wife, I arrived in Salzburg, the interesting old capital of the district of that name; and I noted that the lofty peaks surrounding the town to the south were already covered with snow. Half an hour's journey by rail along the banks of the gray-green glacier-fed river, the Salzach, took us to the little village of Golling, whence a waiting motor car carried us up the winding highway to the divide, from which one had a most wonderful view of the somber pine-clad hills and the many jagged mountain ranges beyond. A little further across the divide, or pass, and we reached our goal,—the little village of Gosau, and drew up in front of a miniature chateau, the beautiful summer residence of the owners of the shoot.

We were quartered in an adjoining small lodge, and were soon in deep palaver with the keeper, Hans,—a long and lanky mountaineer, about the prospects of sport for the morrow. Besides chamois on the upper levels, these forests harbored good stags and roe deer; while of feathered game there was the magnificent Capercaillie (*Tetrao Urogallus*), nearly as big as a wild turkey, and the smaller Black Cock (*Tetrao Tetrix*),—game birds which the continental sportsmen honor by shooting them only during the "Balz" or spring "drumming," and then only with a small rifle.

Personally I was interested only in the chamois, which, since their partial extermination during the war, were again increasing; though recently that scourge of the chamois,—the "Räude," a kind of mange, had been setting them back. However, Hans assured me that the bucks were in full rut, and if only the weather would keep fine we were sure to have good sport.

The next day we started off for our chamois ground, which was an isolated mountain peak to the west,—the "Gamsfeld," some 6000 feet in height and from our side looking somewhat tame, but on the northern side being cut up in a jumble of serrated ridges and deep chasms. Accompanied by Hans and a carrier, each of us with a heavy rucksack on his back, and a long "Bergstock" or iron-shod climbing pole, we followed the highroad to the little village of Rusbach, from which we took a small narrow cattle track that wound steeply up a narrow gorge. After a couple of hours of climbing, the gorge ended in a basin with lofty rocky walls on both sides; and here there was a cluster of small "alms" or chalets in which the peasants lived in summer, tending their cattle and making cheese and butter. Here also was the comfortable two-room shooting lodge.

These mountains around Salzburg are

of limestone formation, and very little water is to be found except that coming from springs which are usually few and far between. The ground is so porous that a short time after even a whole night's downpour, not a drop of water is to be found. From the little veranda in front of the lodge we could admire the glorious sunset, that shed its many-colored light upon the fantastically-jagged peaks and the glaciers of the two ranges,—the Donnerkegel and the Dachstein, that were visible to the southeast.

It had been snowing during the night, and it was a wintry morning when, before dawn, we set out; Hans and I lighting our way with a small lantern up the steep walls of the basin towards the northern rim, frightening bands of deer, as we discovered from the tracks in the snow on our return later on. After a stiff climb we reached the rim, here forming a small plateau before the ground fell off steeply into another wild gorge backed by a steep broken mountain range. The main peak of the Gamsfeld with its many clefts and serrated ridges rose to the right, while to the left of us rose another steep rocky wall, its lower slopes covered with dense clumps of the "latchen" or creeping fir, which is such an excellent covert for game and nearly impenetrable for the hunter.

Through my powerful glasses I soon discovered chamois high up among the snowfields of the Gamsfeld, but they were unapproachable from where we were. Finding a sheltered spot, we put on our spare clothing and prepared for a long and cold wait. The sun rose higher but with it came the wind, and hot as we were after the climb we were soon chilled to the bone. Suddenly Hans touched me, pointing towards the rocky wall on our left; and I saw a solitary chamois against the skyline. Carefully it was picking its way along the face of the rocks, utilizing every little protuberance for a foothold, and stopping now and then to carefully scrutinize its surroundings. The wind was favorable, and if the chamois continue on its course it would finally reach the steep latchen-covered slope below the rock wall, where I might get a long shot.

Through the glasses I could now judge our game, which was evidently an old buck with good horns; but he looked very bulky in his thick black winter coat. With many pauses he kept coming down, and I had ample opportunity to admire his sure-footedness. Finally he emerged upon the slope, and struck out across the snowfields just above the latchen. I picked out a small stone in the snow some 150 to 200 yards away, where I would shoot.

Perhaps foolishly, I had left my Springfield Sporter at home, it not having any scope sight; and, following the custom of the land, I was armed with a short-barreled scope-sighted Mauser chambered for

the German 8 x 60 Magnum cartridge, and having a rather hard trigger-pull. I had not yet tried it on game.

Now the buck had arrived at the stone, and I put the bead on its shoulder, not yet quite trusting the scope. The bead nearly covering the whole fore part of the animal, and for the first time in many years I felt a suspicion of nervousness. The shot rang out and the chamois made a jump downwards, its shoulder shattered somewhat too low down. Another quick shot and he slithered into the latches, from where Hans with difficulty retrieved it, not yet quite dead. Bad shooting.

With the old-time honored custom of the Alps, Hans now broke off a green latches twig which, dipped in the chamois's blood, he offered me on his hat with the words: "Waidmannsheil" (Hunter's luck). Incidentally, it was also an occasion for a swig from the little flask containing the local brandy distilled from the red berries of the Rowan tree. After cleaning the buck, which proved to be a good one, Hans carefully plucked out the long hairs along the backbone, and these he later bound up into a very swagger "Gamsbart" for the hat.

It snowed heavily that night, and after an unsuccessful day on the rocks—the chamois evidently having been driven lower down by the snow—we moved over to the eastern side of the Gamsfeld by a roundabout route, where another little hut was situated among the tall pines in a valley facing the terribly-broken northern walls of the mountain. On the way over we frightened a bunch of chamois, which tore across the track and disappeared without giving me a chance to shoot.

It was a fine clear morning when Hans and I left the hut in darkness and climbed the wooded slopes, finally emerging under the precipitous walls of the Gamsfeld which from this side is one mass of knife-sharp ridges and deep clefts filled with snow and ice; typical Dolomite formations. We got on a small track skirting the rocky walls and crossing several deep chasms, finally reaching a large latches-covered slope to the west of the main peak. The snow was now very deep, and made walking laborious.

At last we emerged from the latches-belts, to a ridge overlooking the whole slope and the western ridge of the Gamsfeld; and finding a good point of observation, we sat down to use the glasses.

After a while I discovered a solitary buck chamois on the sharp lower edge of the Gamsfeld some six or seven hundred yards away, clearly outlined against the sky. After a while it disappeared, but again came into view lower down, again to disappear. Looking below us I spied two small kids emerging from the Latches, playfully capering about. Then a doe followed, and another, until there was a

small herd of chamois. A little later two bucks appeared, but they suddenly took fright, possibly catching a treacherous eddy current from us, and went tearing across the large snow-covered hollow between us and the Gamsfeld ridge, taking the herd with them. It was marvelous to observe the ease and speed with which they negotiated that steep snow slope. One of the two bucks, a very good one, parted company with the herd and continued alone upwards, while the others turned downwards towards the sheltering latches. "Shoot! shoot!" Hans was hissing in my ear, but I thought the range was rather long—a good three hundred yards. However, when the buck stopped, looking grand against the white background, I hurriedly fixed my Zeiss Zielvier scope on the rifle, and, resting the latter on the rucksack, I held a good two hands over the back of the chamois, fighting that hard trigger-pull to get a good squeeze off. At the shot the buck whirled and set off at a mad pace down the slope.

Missed clean, at least. I thankfully thought; but after a few leaps the buck suddenly collapsed and slid along in the snow, finally coming to rest in a hollow, showing the typical effect of a heart shot. The copper-capped boat-tailed Magnum bullet had torn a large hole through the opposite shoulder.

* * * * *

It is the first days of August, and delightful summer in the high Alps. For some days my quarters have been a tiny hut perched high up on the slopes of the "Midterkopf," one of the many parallel ridges jutting out into the Pinzgau valley from the great Hohe Tauern massif. Far below the glacial waters of the Untersulzbach river are thundering along on their way to swell the waters of the Salzach, and from the porch I get a glimpse through the pines of the upper end of the valley with its enormous blue-green glacier topped by the lofty cone of the "Gross Wenediger," some 12,000 feet high.

It is my third season after chamois in these glorious surroundings, the shoot this time consisting of three parallel ridges with deep V-shaped valleys between, each drained by a glacial torrent. Each separate shoot is watched over by a keeper who patrols the ground regularly, and each has its small comfortable shooting lodge for the accommodation of the keeper and the sportsman, the necessary provisions being packed in from the main Pinzgau valley.

My friend and host, the lessee of these shoots, occupies the neighboring ridge across the Obersulzbach valley, the hut lying at the entrance to the Rinderkaar—a large rock-walled basin where some years previously I was caught in a snowstorm, the snow finally getting so deep

that I got out only with the greatest difficulty. The Rinderkaar shoot is somewhat higher and more difficult ground, but perhaps not harbouring quite so large bucks or so good roe deer as the Midterkopf.

Previous experience had made me discard my short Magnum Mauser with its high-mounted telescope, and this season I carried a new rifle, the result of many a pipe dream. This chamois-shooting is undoubtedly responsible for the very short-barreled Mausers and Mannlicher-Schöenauers seen everywhere in the Alps, and these no doubt are extremely handy when climbing over difficult ground; however, if there is any sport which calls for a super-accurate rifle with flat trajectory, it is chamois-shooting, and with the modern Magnum and Super Magnum loads now used a long barrel is necessary in order to burn the large charges of progressive powder. This little chamois is a small mark and has incredible vitality, and though sorely wounded it will often slink off into impenetrable latches fields, or tumble over precipices to be crushed to a pulp and the horns broken.

Now, I have for a great many years been an admirer of the English single-shot falling-block or Farquharson action—a development of the Old Reliable Sharps; and have used such rifles with the greatest effect. I have hardly ever missed the magazine, for with practice they can be reloaded very quickly, and silently.

I had recently found in London an old second-hand .400 cordite rifle with a beautiful hand-made Farquharson action by George Gibbs, and having a top sliding safety and the sweetest trigger-pull imaginable. Throwing away everything but the action, I had the Suhler firm of Merkel Brothers fit a 28-inch stiff barrel of rustless Poldi Anticorrie steel chambered for the German rimmed 8 x 60 Magnum cartridge with pointed expanding boat-tail bullet of 187 grains weight at 2900 foot-seconds velocity. With a high comb and a very low-mounted Zeiss Zielvier scope, the rifle is perfection and is no longer overall than a Springfield Sporter. Though not having killed any game with it, I had carefully targeted it to shoot to center at 200 metres, and by practicing on full-size animal targets (chamois, roebucks, and the international Running Deer target) I knew exactly how much to hold over at longer ranges.

I may say here that these animal targets in natural size and colors, obtainable in Germany, are most excellent for practicing with one's hunting rifles. They are better than bullseye targets, and may be placed in natural surroundings to simulate actual hunting conditions. . . .

It is yet dark outside when the keeper Hans'l, a cheery companion and a keen and excellent hunter, rouses me. We prepare a hurried breakfast, as it is well to

reach the topmost ridge before sunup. As the morning sun plays up on the peaks while the lower slopes and the valley bottom are still in deep shadow, the air currents rise and may well betray the ascending hunter to the chamois feeding high up at this time, while later in the day the conditions are reversed.

Accompanied by Hans'l and the carrier Seipp'l—a youngster from the valley below, I set out along the narrow little track which has been constructed from the hut, zig-zagging up beyond timberline so as to reach the various points of vantage as quickly and with as little noise as possible.

We are stepping lightly in our heavy nailed mountaineering boots, as one never knows where game may be at this early hour. We reach one of the many deep clefts that score the mountainside from the top ridge to the valley bottom—"klamm" the mountaineers call them, and which are favorite feeding grounds for both chamois and roe deer. I examine the klamm and the slope beyond through my powerful 10 x 50 Zeiss glasses, but can see nothing; so we proceed on our way. The crossing of these klammms would be very hard work indeed and waste much valuable time, were it not for the little narrow track; and though perhaps such tracks may detract somewhat from the wildness aspects of the shoot, one nevertheless appreciates them; and there is plenty of bad ground left for the ambitious mountain climber.

While still screened by a belt of pines, I see something reddish brown out on a steep grassy slope beyond the next big klamm, and stop the two others. Hans'l whispers "roe deer," and through the glasses I can see that it is a doe quietly feeding; but there is certain to be a buck with her somewhere, so we sit down to watch. Yes, there he is, just emerging from behind a clump of latches, and with the powerful glasses I can see that he carries a good head. They are far off, a good three hundred metres, and outside the fringe of the trees there is no cover; but I notice an old haystack left over by some peasant near the track, and crawling on hands and knees I reach it unobserved, and wriggle into a good position. The two deer are still feeding quietly, but are keeping a good lookout all the time; so when the buck is standing still for a moment, I place the reticule of the scope up on his shoulder, a little high, and squeeze off. The shot thunders and reechoes from the rocky walls across the valley, the buck is slammed down by the impact of the bullet and slides

down behind some bushes, while the doe tears down the grassy slope in the most incredible jumps.

I fear I am a little superstitious, like most hunters, and with a new gun or rifle I like to kill cleanly with the first shot at game. Reaching the buck I note that it is an exceptionally good one for the locality. I have hit a little high in the shoulder, and the Magnum bullet has nearly torn away the whole of the opposite shoulder. This was a copper-capped bullet and I subsequently found that a somewhat less-pointed bullet with a very small lead nose was not so much of a meat destroyer, though otherwise just as effective.

As meat will not keep long in this summer weather, I let Seipp'l gralloch the buck and carry it down to the valley, while Hans'l and I continue our climb up the slope, and after many zig-zags we reach the crest from which we now have the most wonderful view of the two Sulzbach valleys below and the many snow-capped peaks and glaciers glittering in the early morning sun. It is already getting hot up here, and one feels inclined to stretch out in the grass and enjoy the view, but there is still work to be done.

This Midterkopf ridge has the form of a chisel rising steeply from the Lower Sulzbach valley and falling nearly perpendicularly into the Upper Sulzbach valley, and our morning's stalk takes us along this knife-edge, we now and then leaning out over the precipice and scanning the rocky walls and ledges far below, where among the clinging latches bushes the old chamois bucks love to feed. We spot an old buck far below us in a clump of latches, but before I can get my sights on him he has disappeared. The sun is now high in the heavens, so the chamois will keep hidden in the latches till the early evening, and we retrace our steps along the treacherous grass slopes, making ample use of the long iron-shod poles.

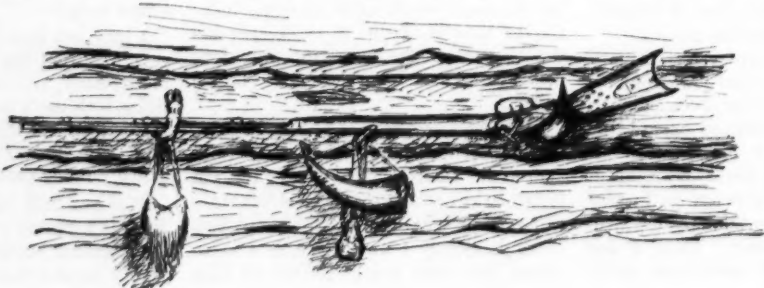
Stalking in the afternoon in the opposite direction from the hut, I kill another roebuck with a long shot, and begin to feel confidence in the new rifle; but the shot must have scared the chamois on the ledges below, as I have no luck with them.

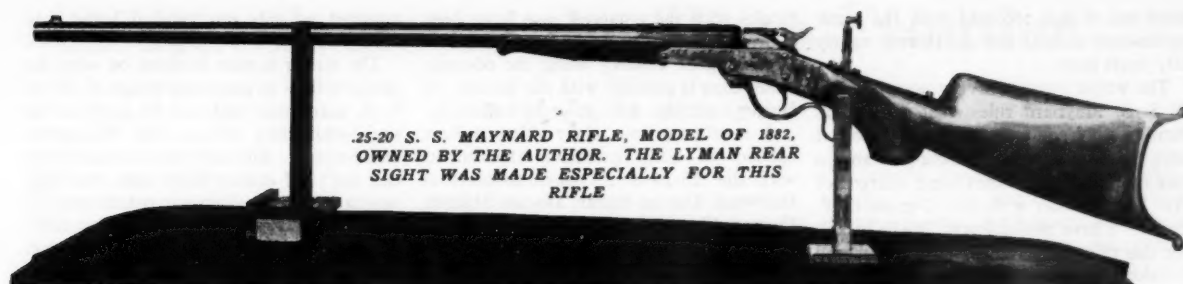
Another early morning Hans'l and I are up on the ridge betimes, and leaning

over the rim I spot two buck chamois in the deep klamm far below. One, the upper of the two, must have seen us move against the skyline, for he gives the hissing whistle of the frightened chamois, and in a couple of fantastic jumps is out of sight. The other one is still undecided, and I manage to get my sights on him and fire; but I strike him too low, and he is off down the klamm. Hastily reloading, I drop him with a lucky shot; and he tumbles down, finally getting out of sight among the trees below. We have a nasty climb to get down to him, and after cleaning him Hans'l fastens his four feet together, and with his belt slings him on his back like a rucksack; after which we laboriously climb back up to the rim.

Next afternoon the situation is reversed. We have been exploring the lower part of various klammms farther out on the ridge, seeing only small fry, and Hans'l is leading me towards a klamm where he is sure he will find a good buck. We are so low down that there is growing forest all about us, but the slope is exceedingly steep and the long grass gives very precarious foothold. I can see the klamm through the trees in front, and we walk with the utmost care, as a slip or a falling stone may give us away. Hans'l is steering towards an old mighty fir tree growing right out on the rim and held there by long snaky roots. Crawling up between these roots I carefully scan the klamm, up and down. A hiss from Hans'l as he points up near the rim of the ridge, and I see a chamois in the middle of a clump of latches, high above us. Now and then he disappears, only occasionally showing part of his anatomy. Nearly vertical shots, whether up or down, are always the hardest, and with a scope one is liable to shoot high. Watching, I finally get a chance and fire, and the chamois rolls about inside the latches, these luckily preventing him from tumbling down the klamm, where he would be smashed to pulp.

To reach him there, is no easy task. We first have to climb up to the ridge, and here meet Seipp'l, who has heard the shot. By climbing down further along the ridge, and lowering themselves on a rope, Hans'l and Seipp'l find that, after all, unseen by us and probably during our climb up to the ridge the buck had slipped out between the latches bushes and plunged down the klamm, ending up near the bottom where, after much looking about, they find the mangled remains, minus one horn.





.25-20 S. S. MAYNARD RIFLE, MODEL OF 1882,
OWNED BY THE AUTHOR. THE LYMAN REAR
SIGHT WAS MADE ESPECIALLY FOR THIS
RIFLE

The Origin of the .25-20 S. S. Cartridge

By H. A. DONALDSON

IN recent years I have noted among vermin shooters renewed interest in the .25-20 Single Shot cartridge; and when any cartridge gives such universal satisfaction, over so long a period of time, it must possess some definitely desirable characteristics. This interest is due more or less to the modern components that are now available, and with which the ballistics of this fine little case can be brought right up to date.

In looking over some old copies of *The American Field* back in 1884, I have found several letters from the pen of F. J. Rabbeth, the shooter that originated the .25-20 S. S. case, which throw some light on his early experiments. It may be a surprise to some to learn that "J. Francis," as he was called by the Walnut Hill riflemen, first worked on a .28-caliber case, the present .25-20 S. S. case being the outcome of experiments made after his .28-caliber rifle was in use.

Mr. Rabbeth was interested in developing a vermin cartridge; one that would give improved accuracy and as high velocity as possible, with the components at hand. To understand fully the situation as it existed fifty years ago, it should be borne in mind that there were no rifles available for small-game hunting, with the possible exception of the .32-20-115 that was used in the Model 1873 Winchester rifle. But this particular cartridge, while accurate, had a low velocity and high trajectory, and was not entirely suited to squirrel and woodchuck hunting; and back in the old days the chuck hunters were looking for high velocity, even as is the case today. Which brings to mind the fact that most improvements in rifles and ammunition during the last half century were brought about by woodchuck hunters. To the untiring efforts of such fine riflemen as F. J. Rabbeth, Dr. Henry Baker, Major Hinman, W. Milton Farrow, Doctor Skinner, Doctor Mann, A. O. Niedner, Horace Warner, Reuben Harwood, E. A. Leopold, Harry

M. Pope, Charles Newton, N. H. Roberts, Capt. G. L. Wotkyns, Capt. G. H. Woody, Col. Townsend Whelen, J. Bushnell Smith, and a host of others I could name, is due the excellence of our modern vermin rifles.

In working out the design for his .28-caliber case, Mr. Rabbeth proceeded as follows: First, in order to avoid the expense of an entirely new case, he selected the longest .32-caliber shell then on the market, this being the Frank Wesson .32 center-fire case, which was $1\frac{1}{4}$ " long. He then had his barrel bored for a bullet the size of the inside of this case, so that he could use a bullet of uniform diameter, and seat it to any depth in the shell. And this made the bore approximately .28 caliber.

For the benefit of those readers who have never used or seen any .32 C. F. extra-long cases, as used in the Frank Wesson rifle, I will explain that the bullets for this cartridge were really 29 caliber, and had at the base only a heel of the diameter of the inside of the case, the rest of the bullet being larger. The bullet was held in the case by this heel the same as in .22 long rifle ammunition in use today; the outside of the case being the caliber-size of the rifle.

With a charge of 25 grains of fine black powder back of a bullet of 85 grains weight, Mr. Rabbeth did good shooting up to 150 yards, the April 1884 issue of *The American Field* showing ten-shot 100-yard groups made by him that measure $1\frac{1}{4}$ ". This was fine accuracy for black powder and cast bullets in those days, and would be nearly on a par with the modern .22 Hornet; and there is small wonder that Rabbeth's experiments aroused considerable interest among the small-game shooters of the day.

This rifle and case he tried out on small game, but because of the way the bullet tore up ducks and gray squirrels, he decided that .28 caliber was still too large for his purpose. He then ordered from E.

Remington & Sons a barrel in .25 caliber, this being the first one of the size ever produced. Rabbeth used the same $1\frac{1}{4}$ " F. Wesson .32-caliber case, reducing it at the mouth to .25 caliber, thus making a slight bottle-neck of it. And this is exactly the same .25-20 Single Shot case as we know it today, and from the very first it gave fine results as a small-game cartridge.

Loaded with 22 grains of Hazard's No. 3 ducking powder and a 67-grain bullet, this cartridge made an 86 on the Massachusetts decimal target, or 48 by Creedmoor count, with 10 shots offhand, Mr. Rabbeth doing the shooting on the Walnut Hill range. In rest shooting he frequently put ten consecutive shots into less than a 2-inch group at 100 yards.

The 100-yard mid-range trajectory height of Mr. Rabbeth's rifle, with 26" barrel and shooting the above load, was $1\frac{1}{2}$ ", and $9\frac{1}{2}$ " for 200 yards. The corresponding trajectory heights for the .32-20-115 Winchester case were $3\frac{1}{2}$ " and about 15". The above trajectories were obtained on the same day at the Walnut Hill range by Mr. Rabbeth and Mr. Hinman, by shooting through tissue-paper screens placed at intervals of 25 yards over the 200-yard range, and the figures obtained are substantially correct.

The firm of E. Remington & Sons not only made up this first .25-caliber barrel, but they also made the bottle-neck cases that were used in the rifle. However, they were in no way eager or impatient to put the .25-20 S. S. rifle and cartridge on the market; in fact from Mr. Rabbeth's letters it would appear that they were waiting to see how great a demand would arise for the new rifle before tooling-up and going into production. However, the Massachusetts Arms Company, of Chicopee Falls, were making the Model 1882 Maynard rifle at about this time, and they were quick to see the advantages of the new cartridge, and adapted their rifle for it. And when this first commercial .25-caliber rifle

came out it was received with the same enthusiasm as was the .22 Hornet nearly fifty years later.

The writer owns two very accurate .25-20 S. S. Maynard rifles, that he uses in hunting gray squirrels. One of these has been fitted with a small firing-pin, and in this rifle is used the maximum charges of No. 2400 powder with the 60-grain O. P. bullet. I have two different .25-20 barrels for this rifle, one having been rechambered to take the case with the short bottle-neck, shown in the picture with the two bullet seaters; this to give more air space in the case for a larger charge of No. 2400, only the 60-grain bullet being used. The cases are fitted to the rifle chamber by firing, and give good results.

For some time the writer has been trying to improve the ballistics of the .25-20 S. S. case with modern components, and where only the short 60-grain bullet was to be used it was decided to shorten the neck of the case and thereby give more powder space. This matter of adding to the body-length of this .25-20 case, however, is by no means an original idea of my own, for in the early nineties Rube Harwood

results with the enlarged case have been entirely satisfactory, and I have been able to get higher velocity using the 60-grain bullet than is possible with the factory .22 Hornet cartridge with 45-grain bullet.

A number of our older riflemen have carried on quite extensive experiments with the .25-20 S. S. Such shooters as Harwood, Doctor Baker, Doctor Skinner, Doctor Mann, and E. A. Leopold were strong in their support of the .25-caliber rifle, from its first appearance. At this time, when so many popular cartridges are available for small-game shooting, I am surprised at the interest still shown in the .25-20 S. S.

For the benefit of those who may think that the straight-line bullet seater is a modern device, there are illustrated two such bullet seaters made well over fifty years ago. The one-piece design was first furnished by the makers of the Maynard rifle with their Model 1873, the one shown

required, as only one type of bullet was used.

The writer is now working on what he thinks will be an improved design of .25-20 S. S. case; one that can be used in the single-shot rifles such as the Winchester and Stevens. This new case is made from the 1 $\frac{3}{4}$ " .32-caliber Ideal case, the new design having a slightly-tapered body to allow of easy extraction, and a short bottle-neck. It is designed for a 70-grain S. P. bullet. The rifle barrel for this new case will have a groove diameter of .257", with a 16-inch twist. With the use of a new powder that duPont will soon place on the market, it seems entirely possible to obtain a velocity of 3000 foot-seconds, which would give better results than does any load now possible in the .22 Hornet, the .22-3000, or the .25-20 S. S. If it is found that a 70-grain bullet is too heavy for this high speed, a bullet of 65, or of 60 grains, will be used. And if this .32-caliber Ideal case will not give the desired results, then we shall try the .32-40 Winchester case, cut off to 1 $\frac{3}{4}$ " and necked to .25 caliber.

I hesitate to give the maximum charges

LEFT TO RIGHT: .25-20 S. S. WINCHESTER CARTRIDGE; SAME CASE, WITH IMPROVED SHORT BOTTLE-NECK; ONE-PIECE .25-20 MAYNARD BUL-

LET SEATER; .32 IDEAL CARTRIDGE; .22 HI-POWER CARTRIDGE MADE BY CHAS. NEWTON BY NECKING-DOWN .28-30 CASE; .25 HI-POWER CARTRIDGE MADE BY NEWTON FROM .40-90 CASE; .38 EXTRA-LONG C. F. CARTRIDGE FOR FRANK WESSON RIFLE; STRAIGHT-LINE BULLET SEATER MADE IN 1873 FOR .38-CALIBER CASE; PLUNGER FOR SAME BULLET SEATER



also changed over the case as I have done.

Since having had my own barrel rechambered, I have learned from N. H. Roberts that Harwood did not get the results that he expected. This may have been due to his using black powder, the increased charge serving only to increase the powder residue in the barrel. (I described in the July RIFLEMAN the methods used by Harwood in getting into the .25-20 case the maximum charges of semi-smokeless powder.) However, my own

being made for the .25-20 S. S. Model 1882 Maynard rifle. The other bullet seater, with separate plunger, was made by the old Union Metallic Cartridge Co. for the .38 extra-long center-fire cartridge used in the Frank Wesson sporting rifle, Model 1873.

The cases are a close fit in both of these old bullet seaters, and the tools produce as good results as any modern bullet-seating equipment. There was no adjustment for seating-depth of bullet, but at the time these tools were in use no adjustment was

of No. 2400 powder that I am using in my .25-20 Maynard with improved chamber, for some shooter might run into trouble if he attempted to use the same load in the regular case.

The most accurate cast-bullet load for the .25-20 S. S. is one that I have used for some time for squirrel shooting after having tried and carefully tested some thirty different loads. I use Winchester cases, No. 116 Winchester primers, 5 grains of

(Continued on page 37)

Revolvers on the Texas Frontier

By WILLIAM D. HOULETTE

IT IS only within the last hundred years that the revolver has been successfully developed as a weapon of defense. In the country east of the Mississippi River, the American pioneer was able to meet and conquer the Indian with the rifle and the pistol. Most of the fighting in that region was done on foot in wooded country. The older type of weapons were suited for that form of combat, but when the pioneers crossed the Mississippi and advanced into the region of the great plains, they found that their firearms were inadequate for proper defense.

It was in Texas that the need of a new type of weapon became evident during the fourth decade of the nineteenth century. When the Americans began the settlement of Texas, they found two foes, Mexicans and Indians, barring the way to further expansion. The revolver played a conspicuous part in the final conquest of each of these enemies. Texan independence had been won before the revolver became a necessary weapon of defense, but later this new-type firearm rendered efficient service in the hands of intrepid pioneers in curbing border raids by both Mexicans and Indians.

Before the appearance of the sixshooter, the mounted Texan, in his combats with the plains Indians, was at a disadvantage. His firearms were the rifle, and the single-shot, or in a few cases the double-barreled pistol. The former could not be fired accurately from horseback, and was unhandy for use in close combat. Pistols could be used in close engagements, but at best only two could be carried at one time, so that the mounted Texan could count on only three, or at best five, shots before it was necessary to reload. Some of the Indians were provided with more effective weapons for fighting on horseback.

The Comanche Indians were among the more formidable adversaries of the Texans. These natives were skilled horsemen. Captain Marcy, when exploring the Red River in 1852, noted that the Comanche warrior, when in battle, could throw himself entirely upon one side of his horse and discharge arrows with great rapidity from beneath the animal's neck while it was running at full speed. Thus the horse acted as a shield for the warrior, and was at the same time a rapidly-moving target, difficult for the white man to hit. Upon fleet horses the Comanches made frequent pillaging expeditions against the settlers, killing people and

stealing cattle and horses. In order to check these depredations, on the part of both the Mexicans and the Indians, a mounted patrol known as the Texas Rangers was organized in 1835.

The Rangers zealously patrolled the border and succeeded in curbing the marauding activities of the Indians and Mexicans. In close combat between mounted forces, the superiority of the weapons of the Comanches was manifest and the Rangers began to desire more effective firearms. The rapidity with which the Indians shot their arrows made it difficult for the white men to stop and reload their single-shot weapons. If the number of Rangers was sufficient, they could stand their ground and receive the attack of the enemy, part of the men firing while the others reloaded. When the Rangers were few and the Indians many, the best course for the former was to seek safety in flight, depending upon the greater speed of their horses to escape capture. The horses of the pursuers were often swifter, and the Indians carried new scalps back into camp. Thus the white men were greatly handicapped by the inadequacy of their weapons for mounted combat. This handicap was soon removed, however, with the invention of a new type repeating firearm by a New Englander named Samuel Colt.

A patent on a pistol with six revolving chambers was taken out in America by Colt in 1836 and two years later a company was organized for its manufacture. This new weapon was found to be accurate and dependable, and in 1839 some of these sixshooters found their way into Texas. These were welcomed by the Rangers who saw that the new weapons might enable them to meet the Comanches on more even terms. The first model of the Colt revolver became known as the "Texas", due to its extensive use in the new republic north of the Rio Grande. The Texas influence was even greater upon the second model Colt. Captain Samuel H. Walker, of the Rangers, was sent to New York to purchase some of the latest-type firearms. While there he met Colt and suggested certain improvements in the revolver. These suggestions, including a trigger guard and loading lever, were incorporated in a new model, which was named the "Walker-Colt" in honor of the famous Ranger captain. With these new weapons the Rangers were better prepared to cope with their adversaries along the frontier.

It was not until about 1840 that the Rangers had an opportunity to try out

their new repeating pistols on the Indians. Captain John C. Hays and a troop of fourteen Rangers were scouting along the Pedernales River when they discovered a band of about seventy Comanches. The Indians gave battle, and great was their surprise when they found that the Rangers were not obliged to stop and reload frequently, but kept pouring a constant and galling pistol fire into their ranks. Some of the Rangers and about thirty of the Indians were killed, but considering the disparity of numbers, the former could claim the victory.

A short time after the battle along the Pedernales River, the Rangers again had an opportunity to test the efficacy of their new weapons. Captain Hays and some of his men were attacked in a canyon along the Nueces River by a superior number of Comanches. At first the white men stood and received the attack as the Indians went sweeping around discharging their arrows. The Rangers returned the fire with their rifles, and then quickly mounted and charged the Comanches, firing into their ranks with revolvers. The Indians were surprised by the unexpected attack, and their ranks were quickly disorganized. They tried to make a stand, but in the mêlée their horses were stampeded by the noise of the constant revolver fire from the yelling Rangers. Hard-pressed, the Comanches beat a hasty retreat, but the Rangers pursued them so closely for three or four miles that they were unable to use their bows and lances effectively. Some discarded their bows, shields, and lances in the confusion of the retreat. One of the Indians who escaped later stated that the Comanches lost half of their warriors who were engaged in this fray. The line of retreat toward Devil's River was marked by the death of warriors all along the route.

Beyond the borders of Texas, Colt's revolvers were used on the Santa Fe trail as early as 1839. Josiah Gregg accompanied an expedition to Santa Fe in that year, and carried the new repeating pistols. Meeting a band of Comanches, he was surprised by the rapidity and accuracy with which they shot their arrows at prairie dogs. In order to impress the savages with the efficiency of the white man's weapons, Gregg drew his Colt's revolver and fired six shots in rapid succession at another prairie dog. He noticed that the weapon made a great impression upon the Indian chief.

Later, on the same trip, Gregg believed that the possession of several of these new

revolvers was instrumental in impressing the Indians and saving him from being misguided and led into captivity. When the caravan was nearing Santa Fe, Gregg desired to go on in advance to the town to notify the merchants and officials of their approach. Three Comanches were secured for the purpose of guiding him over the nearest route. As he was the only white man and they were still within range of the Comanche war parties, he feared that his guides might desert him or deliver him up in case they should meet the enemy. Gregg was heavily armed, and stated that "All I had to depend upon were my fire-arms which would hardly fail to produce an impression in my favor, for thanks to Mr. Colt's invention I carried thirty-six charges ready loaded, which I could easily fire at the rate of a dozen per minute." No war parties were met and the firearms exerted the right influence upon the guides, who led him safely into Santa Fe.

During the Mexican War, the revolver again rendered efficient service in the hands of the Texans. The long period of border warfare and raids from beyond the Rio Grande had aroused resentment and a desire for retaliation upon the part of the Texans. The Rangers were especially eager to meet the Mexicans in combat. For this reason most of them offered their services to General Taylor. They were accepted and a regiment was raised under the command of Col. John C. Hays. Samuel H. Walker, Ben McCulloch, and other famous Rangers served as officers in this regiment. Due to their knowledge of the Mexican mode of fighting, some of the Rangers served as spies and scouts for the American army. The Rangers furnished their own arms, which included Colt's revolvers. When it was found that there were not enough sixshooters to equip the regiment of Rangers, and their demand for these weapons continued, General Taylor asked the government to procure for him a thousand Colt's revolvers. Great difficulty arose, as this requisition could not be filled at once.

Except in Texas, there had at first, been little demand for Colt's revolvers, and the company organized for their manufacture had gone bankrupt in 1842. Colt was still suffering from these financial reverses when the government officials sought to have him supply the weapons desired by General Taylor for the use of the Texas Rangers. He did have faith in the future of his invention, however, and, with a greatly-improved model, he sought a manufacturer. Colt arranged with Whitney, manufacturer of cotton gins and firearms, to undertake to fill the government order. This was accomplished, although Colt lost money on the contract. He did, however, secure governmental recognition of his in-

vention, and in a few years his financial success was assured.

In the meantime the revolver, in the hands of the Rangers, had played an important part in hastening Mexican defeat and enlarging American territorial possessions in the southwest. These men participated in numerous engagements. Colonel Hays and Lieutenant-Colonel Walker with a number of Rangers, greatly aided General Taylor in the assault on Monterey in September, 1846. In April of the following year five companies of Rangers under Colonel Hays were at Mexico City. A short time later—July, 1847—President Polk selected Hays' regiment to hunt down Mexican guerrillas. The very appearance of these men seemed to inspire fear on the part of their enemies. Their nondescript clothing, heavy black beards, and the fact that they were heavily armed with a rifle, one or two Colt revolvers, and knives, gave them a very savage appearance, and it was not strange that the Mexicans were alarmed at their approach. Despite their ferocious appearance and exceptional fighting ability, the Rangers were forbidden by both Hays and Walker to do any unnecessary pillaging. Walker's restraining influence was soon lost, however, as he was killed in the attack on Huamantla in October, 1847.

The close of the Mexican War lessened the number of raids from marauders south of the Rio Grande, but the danger from Indian attacks continued. The traveler along the Texas frontier, in the decade after 1850, found it necessary to go heavily armed. The Colt revolver was the favorite weapon for defense in close combat, while the Sharps rifle was commonly used for longer-distance shooting. When Frederick Law Olmstead journeyed through Texas in 1853 and 1854, he carried both of these weapons, together with a Bowie knife and a heavy-gauge shotgun. His revolver was a Colt's Navy model. Regarding its durability, Olmstead stated that "Of the Colt's we cannot speak in too high terms. Though subjected for six or eight months to rough use, exposed to damp grass, and to all ordinary neglect and accidents of camp travel, not once did it fail to answer the finger." Evidently the success of this revolver prompted others to try to make a similar weapon, for Olmstead mentioned the fact that his party carried an unpatented imitation, but that it was generally unsatisfactory. The members of the Olmstead party tried out several different kinds of repeating pistols before setting out upon their journey, and finally decided upon the Colt, because of its superior merit. Writing of the general prevalence of the Colt, Olmstead stated that "There are probably in Texas about as many revolvers as male adults, and I doubt if there are one hundred in the state of any other make."

Although some Texans at that time carried their weapons for display, the latter were usually needed for more utilitarian purposes. Olmstead and his followers found practical uses for their weapons. On the frontier they always slept with a revolver and a Bowie knife within reach as protection against horse thieves and other prowlers. At one time they feared that it might be necessary to resort to their Colts for protection when overtaken and surrounded by a number of Indians near Castroville. Gun play became unnecessary, however, as the Indians proved to be peaceably inclined at that time. Olmstead noted that the vehicles for carrying the mail and passengers to El Paso and Santa Fe were heavily guarded as a protection against Indian attacks. The guards were heavily armed, with revolvers and a Sharps rifle for each. There can be little doubt that these men were prepared to meet almost any adversary, as many of them had formerly been Texas Rangers. Despite some losses of men, the mail and passengers were carried over these routes at more or less regular intervals.

After the gold rush in California there was considerable demand for beef to feed the hungry miners. At the time Olmstead was in Texas, herds of cattle were being driven overland to California to supply the demand there. He saw one herd of four hundred head being prepared for the long overland drive, and the thing that particularly impressed him regarding this drive was the sleek, fine condition of the cattle at the start. There were twenty-five men to drive and guard the herd. Some were old frontiersmen and drovers who were paid for making the trip. The majority were young men emigrating to California, who were glad to work for their expenses. All were mounted on mules and were armed with government rifles and Colt revolvers. One young man, James G. Bell, who accompanied a cattle train to California in 1854, kept a diary during the journey. Although the guards were well mounted and armed, they were greatly handicapped when two Mexicans, who were with the party, decamped with four of the best horses, two rifles, and three sixshooters. Despite this loss the guards were able to complete the drive successfully.

In all phases of the Texans' frontier and border activities, warfare with the Mexicans, attacks upon marauding Indians, protection of mail and passenger routes, and the guarding of overland cattle drives to California, the sixshooter was conspicuous and necessary. Thus, during the two decades before 1860, the revolver, in the hands of daring and skillful men, played an important and ever-increasing role in pushing invaders, both Mexican and Indian, back from the Texas frontier.

A Few Notes for Four-Position Target Shooters

By MORGAN G. HOLMES

NO BETTER way presents itself for beginning this article than to pay tribute to the makers of our .22-caliber target arms and ammunition. They have brought about many changes and improvements, and I do not believe the average target shooter has kept pace with them. When I say *average* target shooter I have in mind the fellow who can find time to go to his club only once, or perhaps twice, a week, and is primarily interested in the four-position matches which his club shoots shoulder-to-shoulder with some rival club. The expert has learned that only by taking advantage of every available means can he hope to be satisfied with his scores when shooting in strong competition; but the tyro, on the other hand, has probably not graduated from the period of sore muscles as a result of the sling and of forcing himself to go through the contortions of the shooting positions. Therefore the latter is too busy trying to do what seems the impossible, and finds no time to spend on the fine points which the expert has learned are so necessary.

If the average target shot, when purchasing his rifle, were informed by the salesman that the bore was one hundred-thousandth of an inch above normal, he would have nothing to do with that rifle, and would demand one of perfect dimensions; and yet after being so exact in the choice of his arm, he proceeds to shoot for three or four years with an average score of from 165 to 175 for the indoor season; which score seems to place a man about in the middle of the average club's rating chart. In other words, he is neither really good nor terribly bad.

Now, it does not seem logical for a marksman who is so precise in his choice of a gun to be satisfied with this sort of rating after shooting three or four years. He is quick enough to pan the arms and ammunition manufacturers for the slightest variation in the smallest detail of a rifle which, after all, would give him excellent results if he would check up and become a little more critical about his own part in the game. It is my opinion that if the average shooter would pay a little more attention to a few things which the majority in my experience overlook, many average shots would soon be pushing the expert for his laurels.

Every shooter has undoubtedly at some time or other heard that it is good form to relax every part of the body so far as pos-

sible, while shooting from any of the four positions. To do this one must remember to bring into play as few muscles as possible while aiming and firing; and good gun fit and proper holding will be a help in this direction. There are two instances in particular in which the average rifleman neglects this rule: first, in gripping the fore-end, and second, in cheeking the stock.

Gunmakers build their arms to fit the man of average build; and this includes the placing of the forward swivel. But men's arms are not all of the same length, and so it is impossible to have the same swivel position fit everyone. I believe it is far worse to have the swivel too far forward than too far back. A swivel placed too far forward on a target rifle forces the marksman to grip the fore-end in a tight grasp. This condition will show up most plainly in the prone position, but will have some effect in sitting and kneeling. When the shooter is obliged to hold his gun in this manner instead of being able to rest his hand against the swivel, the muscles of the arm are brought into play, introducing additional tremors, which are always more pronounced when the muscles are under tension. It is therefore a decided advantage to have the swivel so placed that the rifle is in the proper position and pointing toward the target when the flesh of the hand between the thumb and first finger is in tight contact with the pad covering the swivel. This permits the hand to rest against the swivel instead of having to grip the fore-end. So determine just where the swivel should be for your rifle, and place it there yourself or have a gunsmith do so.

Another condition which causes the same gripping as a swivel too far forward is a sling without protection at the point where the hand comes into contact with the swivel. A sheepskin pad used in the usual manner of wrapping it around the sling and sewing the ends together is fine, but an extra piece of the pad should be left at the forward end to cover the extreme end of the sling and continue around inside of the swivel. This makes a comfortable rest and does away with the desire to pull away from the swivel in order to save the hand from coming into hard contact with it.

The stock of a 52 is about right for iron sights, but when using a telescope the line of aim is raised about one-half inch above the line of aim through the iron sights. We shall assume that your rifle

has a comb high enough to allow a large amount of the tension in the neck muscles to be relieved by placing the cheek-bone in firm contact with the comb. If such a fit is had with iron sights the same comb will be of little use when the telescope is used. Therefore it is advisable to raise the comb the one-half inch which the telescope has raised the line of aim; for the average shooter cannot afford to forget that this is one of the few places where the body is permitted to come into contact with the gun. A Rowley cheek-pad of the desired half-inch in height can be obtained, and laced on the stock when the scope is used. If this pad is always used with the telescope, the shooter will become accustomed to a correctly-fitting comb much more quickly; and once you have thoroughly familiarized yourself with the right comb nothing else will satisfy you.

And, last but by no means least in importance, we come to the matter of aperture front sights, often a perplexing one to the beginner, as well as to the more seasoned shooter. The size of aperture chosen for the Lyman 17A front sight is often too small. Upon questioning the average shooter about this, I have found that the smallest aperture which will give even the faintest line of white between the bull and the sight, is often the one chosen. In many cases the rifleman who uses such a sight frequently complains that the bull will appear to be oblong. This is quite so, and it will not be rectified until a sight is used which is large enough to leave a clear and definite space of white around the bull. With an aperture too small for the shooter the bull at various ranges appears to set up an attraction for the inner circle of the sight. This causes unnecessary eye-strain, and it is certain that attempting to place an oblong bull in the center of a round aperture will not act as a bromide on a rifleman's nerves.

It is well to remember, also, that because some high-score man in your club uses a certain aperture, this size is not necessarily correct for you. Eyes differ as much as do other human characteristics, and every man must find the size of aperture that is suited to his own personal makeup. If an aperture is chosen which will leave what appears to be about one-quarter inch of white around the bull, much eye-strain will be eliminated and one's supply of alibis will not be so heavily taxed.



ELK COUNTRY. A GOOD BLOOD TRAIL IS NEEDED TO FOLLOW AN ANIMAL THROUGH THIS

The .400 Whelen on Elk and Mule Deer

By ELMER KEITH

WHEN Colonel Whelen designed the .400 Whelen rifle and cartridge, I believe he created one of the best, if not the best, American cartridges for our heavier game such as elk, moose, and large bear; especially when shooting is to be done in dense timber and at ranges not to exceed 300 yards. At the time he designed this cartridge, which was produced by Griffin & Howe, as were the rifles, the Colonel had only the 300-grain .405 Winchester bullet to work with. This bullet is of too blunt a form and too light in weight for best results on heavy game, and did not bring out the full possibilities of the cartridge. The blunt nose caused the bullet to lose velocity very fast, and the jacket was a trifle too thin in both hard and soft-nose. In soft-nose a slightly heavier jacket would have given greater penetration. In full-patch the jacket was too thin for work on the heavy bones of the pachyderms of Africa, for even these bullets expanded somewhat. I found that they mushroomed at close range when killing crippled horses.

Despite these handicaps, the well-known American sportsman, Doctor A. P. Chesterfield, carried the rifle to Africa on an extended hunting trip, and killed about all

species of African game, including lion, elephant, buffalo, rhino, hippo, and most species of the larger African antelope, with it. He used the full-patched 300-grain bullet at 2,450 feet velocity on the pachyderms, and on one buffalo that charged and was killed with a brain shot at 10 yards. Much of the antelope-shooting included 400-yard work, and even at this range the Doctor found the .400 Whelen rifle very satisfactory in every way, and used it almost to the exclusion of his pet Springfield and his double cordite rifle. Nevertheless, he carried the big double with him for life insurance.

Doctor Chesterfield's experiences on this one trip amount to a great deal more than any of us can accumulate in a lifetime of hunting in North America, and with this in view I consider my own very limited experience with the .400 Whelen as merely a drop in the bucket; but I will give it for whatever it may be worth. Anyone interested in the rifle should if possible read the article about it in the April 15, 1924, *AMERICAN RIFLEMAN*.*

When Colonel Whelen designed the cartridge, he knew the type and weight of

* We regret that we are unable to supply copies of this issue.—Editor.

bullet he wanted: a 350-grain semi-pointed bullet with heavy jacket at 2,300 feet velocity. However, he had to use what was available at that time, and wait for some company to bring out a heavier bullet after the cartridge had proved its worth. Many of the most experienced African hunters who examined the rifle, including Leslie Simpson, were very much in favor of it for African shooting, but all were unanimous in the opinion that the bullet should be heavier and longer, with a semi-pointed shape and thicker jacket.

Mr. Simpson advocated for Africa a .35-caliber rifle throwing a 275-grain bullet at 2,500 feet, as being the ideal all-around rifle for the Dark Continent when backed by a good double cordite rifle. Griffin & Howe then brought out two new rifles. One was for the most excellent .35 Whelen cartridge, handling a 275-grain bullet at 2,300 feet, and was built on the Springfield action, while the other was the .350 Magnum, built on the Mauser action and handling a 275-grain semi-pointed bullet at 2,441 feet; this latter being the exact rifle and cartridge advocated by Mr. Simpson.

The .35 Whelen makes up into a light and easily-carried arm of from 7¾ to 8¾

pounds weight, and has a short bolt-throw. When made on a Springfield action all parts except the bolt are interchangeable with those of one's pet Springfield, and the rifle has only 141 feet less velocity with the same 275-grain bullet than has the G. & H. .350 Magnum. The Magnum is more expensive, is heavier, the parts are harder to procure for replacement, and last but not least, the action has a longer bolt-throw, and is slower to operate. This last feature is apt to cause failure to reload in the hands of the uninitiated when facing dangerous game, due to not pulling the bolt all the way back. Except for extreme long range, I would choose the .35 Whelen over the .350 Magnum. Both, however, are most excellent modern weapons.

Soon after the appearance of Colonel Whelen's article in the above-mentioned number of the *RIFLEMAN*, the Western Tool and Copper Works brought out their Ideal semi-pointed 350-grain bullet for the .400 Whelen. While I have shot a great many 300-grain Western bullets in my .400 Whelen rifle in testing for accuracy, shooting such pests as jack rabbits, killing crippled horses, etc., I have used only the 350-grain W. T. C. Co. bullet, ahead of 63 grains of No. 17½ duPont powder, for all my game-shooting. This load develops around 2,300 feet velocity, while the 300-grain bullet with 66 grains of the same powder develops 2,450 feet; sometimes less with different canister-lots of powder. This 350-grain load has proven to be very reliable under most all conditions.

Over twenty years of hunting American big game, especially our heavier species, has convinced me that for reliable results under all conditions in timber and brush, with raking and running shots, only long, heavy bullets with thick jackets, and at velocities of from 2,000 to 2,400 feet, will surely produce reliable results. These

same bullets I prefer to be of not less than .35 caliber, and they must be so constructed that they will always expand, yet retain most of their weight and give good penetration. High velocity is a fine thing

in its place, especially in shooting mule deer, sheep and goat, and coyotes at long range, where a flat trajectory is absolutely necessary; but the bullets of such cartridges are apt to expand entirely too soon on heavy game at close range, producing a bad wound but one that often is not deep enough to reach the vitals of the animal. A velocity of from 2,300 to 2,400 feet is ample to insure vital hits on game the size of elk, large bear, and moose up to 400 yards. Such rifles should be sighted for 175 to 200 yards, when the mid-range trajectory height will not be over 3½ inches, and at 200 yards the bullet will print at the top of or just under the front sight bead. By holding level with the top of a large animal's back at 300 yards, and the thickness of a small gold bead over the back at 400 yards, killing hits can be made regularly on such animals; though this would not apply in the case of small animals like deer and coyotes. Four hundred yards is far enough to shoot at big game, unless one is equipped with a Magnum rifle and telescope sight, and is an expert rifleman. Both the .35 and .400 Whelen rifles will consistently shoot into 4- or 5-inch groups at 200 yards, and do even better at times with fine hand-loads; and such accuracy is ample for our heavier game. My own .400 Whelen rifle has made many 1½-inch groups at 100 yards. It was built by

The eight mule deer were killed with seven shots, at ranges varying from 50 yards to 350 yards, the bullets always penetrating completely through the animals; and as I was careful to place my shots in the lungs in most cases, very little meat was spoiled. On one occasion, while hunting with a friend, I killed two mule deer with one shot at 350 yards. I held over the top of a large buck's back as he stood quartering toward me, and the 350-grain W. T. and C. bullet struck the thin shell of bone on top of the rump and scooped this out, struck some snow and rocks, caromed off the rocks, and passed crosswise through a doe's neck some 50 yards further up the hill. My friend was glad to thus easily fill his own license.

On another occasion I killed a buck at 350 yards with a broadside heart shot, the bullet failing to open on so thin an animal at this range, though it killed almost instantly. On 50-yard shots through the ribs, the exit hole was usually 3 or 4 inches across, yet in spite of this the deer usually traveled some distance—in one case nearly a quarter of a mile, clearly indicating that the big heavy slugs at low velocity do not kill thin-shelled game like deer as quickly at all times as do the lighter high-velocity missiles of the smaller calibers. The rifle is unnecessarily heavy for any game of the deer class, and the .35 Whelen is a

much better all-around rifle for all species. On heart shots the .400 killed almost instantly, regardless of the range. When I went into the brush and heavy timber after elk, the .400 Whelen rifle proved to be the best weapon I have ever used for these animals.

Of the ten elk I have killed with this rifle, three were shot twice, the first shot in each case being a raking shot from the rear; while one received three 350-grain slugs from the rear, which entered the flank and stopped in the big heavy paunch. Even when the

heavy rump bones were struck, the bullet always penetrated on through and into the paunch, invariably stopping the animal. If standing chest or broadside shots could have been obtained, one shot would have



MY BEST ELK HEAD WITH THE .400 WHELEN RIFLE

J. V. Howe, one of our finest gunsmiths.

Of the eighteen head of game I have killed with the .400 Whelen, eight were mule deer and the others elk. My father also killed his elk last fall with this rifle.

accounted for each animal; however, this was not the case, and when all one can see is a big yellow-colored rump flashing over logs and down timber, and only glimpses of it at that, then this rifle suits me, and I am at home with it under most conditions. All ten of these elk were within 150 yards, and several at from 50 to 100 yards. Six were killed clean with one shot, though some of them would have gone a long distance had a lighter cartridge been used. On heart or lung shots the slugs went clear through and out the other side, leaving a good blood trail; but the elk went only from 30 to 60 yards with such placing of the bullets. Bullet holes at exit were usually about 2 inches in diameter, and were often completely closed with fat.

To give an idea of elk hunting under the conditions in which I have had to hunt them for the past ten years, I shall go into detail concerning the killing of three of these animals. In 1931 while hunting with George Clark on the Lochsa, we had forded this cold, clear stream and begun working up a very steep mountain toward Beaver Ridge. The mountainside was completely covered with great cedars, fir, and white pine, with about every conceivable kind of underbrush thrown in, including salalle, scrub cedar, hemlock, alders, mountain maple, yew, and many other varieties. One could see only from 30 to 70 yards ahead. Elk tracks crisscrossed the whole territory, where various bands of animals had passed in traveling down to their winter range.

We had gone up this mountain some 400 yards when a big bull jumped and started up the slope. All I could see was one very heavy and wide antler and half of his body between the huge cedar trunks. It was a rump shot or nothing, and one look at that big horn was enough for me. I held as close to the tree bole as I could, and squeezed. Even as the rifle recoiled up out of line I saw the old boy come over backwards, his big horns being driven deep into the wet ground. I had held well up on the white patch on his rump. We worked around above him, though I felt certain that the 350-grain bullet had penetrated into the vitals, and would be enough. Such was not the case, however, owing to the steepness of the mountain; and the bullet had ranged down into the paunch after shattering the heavy left hip bone at its junction with the rump. The old boy regained his feet, and, seeing Clark and me above him, his hair all turned up on end and he came for us. There was a jam of logs piled across between the elk and ourselves, so I waited, while Clark yelled at me to shoot again. I knew if the elk were able to clear the logs, which looked very unlikely, I could stop him at any time; and I still believe my first

shot would prove fatal. He tried three times to jump over the logs, but was unable to do so. We were only 20 feet from him, and he was one angry elk. After finding he could not get at us that way, he turned slowly around the hill, and I asked Clark to plant a .30-30 in the back of his head as I did not wish to shatter the skull or damage the meat with the heavy rifle. Clark's shot struck him in the back of the head and killed him instantly, though it did not penetrate to the brain, but merely shattered the outside part of the skull and formed a blood clot on the brain. This was one of my best two heads, with 53½-inch spread, 49-inch length, and seven and eight points. He was a very old animal, too old to grow very long horns again; however, the horns were very heavy and massive, with wide webs at the sword-point.

Another fine bull I obtained with this rifle was killed two years later, and some five miles higher up the Lochsa. Jerry Ravndal and I had been hunting for several days with no luck, and were crossing a high saddle on the ridge when we heard a bull bugle. We set out in his direction, but then other bulls began to bugle, and we became separated, neither of us knowing where the other was in the dense timber. In such country it is very difficult to see, as the sun seldom gets through the dense mass of cedar boughs above, and one can almost walk right onto an elk before he sees it. Every little while I could hear the old boy bugle, but I seemed not to be getting much closer; then as I circled to keep the wind in my face I crossed his trail and saw that he was traveling. Finally I heard him again a little above me, and then I saw what I thought was a set of elk horns turned sideways. Soon they turned around facing me at 150 yards, and I saw them through a slight open place in the timber. I could not see a hair of the animal, but he had just bugled and knew I could not be mistaken. I held the gold bead between the horns at the bottom, then dropped 6 inches lower, and squeezed one off. Even as the rifle swung me around in recoil I thought I saw a flash of feet high up in the air. Before I had worked up to the place where I had seen the elk I met Jerry, and asked him if he had seen the bull. He said that I was within twenty yards of him, and just ready to shoot when he stretched out his neck and began to bugle again. Then my bullet struck him in the mouth, cutting off the left front tooth and penetrating back through tongue and neck, to lodge in the left shoulder. Jerry said the elk turned a back somersault, and he was still on his back with his big horns driven deep into the ground when we reached him. His neck was shattered, and whether muscle

reaction had turned him over or the force of the bullet had had something to do with it, I do not know; though I believe it was just muscle reaction. This was a nice head, with six and seven points. I would not have fired for anything had I known Jerry was in range and had a shot, but such is the nature of this elk country that you can see only a short distance.

Last fall Frank Berriman, Bud Leek, Sol Speare, Father and I were camped some twelve miles lower down the Lochsa on an elk hunt. Father had made the mistake of offering to cut all the wood, wash all the dishes, and do all the cooking, if I would take him out and get him one good shot at an elk; and needless to say, I immediately took him up on the offer. He and Speare had been joshing each other and offering to bet which would get his elk first, and Father decided to take no chances. It had been two years since he had hunted elk with me. He was past sixty, and not as good in the hills as he used to be, though he still did much better than many younger men. I had loaned him my .405 Winchester for this hunt. We decided to hunt below camp that day, near Squaw Creek, on the slope draining into the Lochsa River.

It was usual Lochsa elk weather—pouring down rain, so that we were soaked in ten minutes after leaving camp. After working out all the lower benches and cedar flats without any luck, although we saw many fresh tracks, I decided to follow a ridge on up about three-fourths way to the top of the mountain, then work around the mountainside, this time toward camp, as the wind had changed. Each draw or gulch was chock-full of very large dense cedars, with the usual scrub underbrush and fallen logs; in truth the forest primeval. The fog closed in at times until we could not see at all and had to sit down and wait for it to clear somewhat. When working out on the edge of a steep canyon I caught sight of a buckskin-colored patch in some heavy alders and salalle across from us. Knowing this to be a fine bed ground for elk, I watched a few seconds and saw the head turn slowly around as the animal tested the wind. Without very careful observation it was hard to tell whether it was an elk or a spot on a log where the bark had peeled off. I motioned for Father to work up to me, which he did greatly excited, as he thought I had one spotted. By this time I had decided that it was a very large old cow all alone, and about 120 yards away. There was only one small hole through which the animal could be seen. Father immediately wanted to know if I had seen an elk, but being afraid he would miss if he knew it to be an elk, I did not reply, but pointed with my rifle. Then

(Continued on page 36)

Cartridges for Double Express Rifles

By CAPT. E. T. LEWIS, B.Sc.

AMONGST sportsmen in America there is an increasing interest being taken in the double-barrel high-velocity rifle. The following article, on the performance of double high-velocity express rifle cartridges and their ballistics is from personal experience of the writer during ten years in the gamefields of the Sudan, British East Africa, and India. I must say that I once had a double .465 misfire on charging buffalo in the Sudan; however, this was the fault of a deteriorated cartridge which had been kept in storage too long in a hot climate, and not the fault of the rifle in any way. This, incidentally, demonstrates the importance of using fresh cartridges, and not relying upon ammunition that has been stored for any length of time, particularly in the tropics.

It may be asked what the advantages of a double-barrel rifle are over a single-barrel weapon with magazine action. The principal advantages are fairly obvious, particularly to the big-game hunter, and are, first, that one has a second shot in immediate reserve should the first one fail to hit, or be badly placed. A second advantage is the handiness and balance of a double rifle for snap-shooting or quick work at close quarters. There is also the accuracy, not only as regards the separate grouping of each barrel, but also the grouping of both barrels together at the various ranges. We have as a total the advantages of light weight, magnificent balance, superb accuracy together with the handling qualities of a fine shotgun, speed of getting the weapon into action because of the shotgun safety, tang peep-sight in the correct position to obtain the best in optical efficiency, locks that can be taken out instantly and are so designed as to give perfect trigger release or single trigger if desired, and a second shot in split-second time, which is a great advantage and in the African and Indian gamefields may mean all the difference between the demise of the hunted or of the hunter.

The writer used for years a .465 Holland & Holland hammerless high-velocity express double rifle that weighed 11¼ pounds, which weight is ample for anyone when shooting in the heat of the tropics. This weapon was used for heavy dangerous game, and when necessary to turn a sudden charge at close quarters; which the solid-jacketed bullet of 480 grains weight with 75 grains of M. D. T. powder at a velocity of 2,140 foot-seconds,

with 4,880 foot-pounds of energy, rarely fails to do, as the largest game can be turned with a bullet combining the above enormous stopping power and velocity. This rifle is the most powerful for its size yet made. I have seen, on the Abyssinian border, a .465 H. & H. solid-jacketed bullet of 480 grains pass through an elephant's head and penetrate more than 4 inches into a solid log of wood. Another time, when shooting with a friend using a .470 double with 500-grain solid-jacket bullet, the latter shot four bull elephants, and in each case the solid-jacket bullets were driven right and left through the animals' heads four times running; and this in spite of the fact that various sportsmen say it cannot be done, regardless of bore, type of bullet, or make of rifle.

As a second rifle to the heavy double-barrel weapon, or as a general utility weapon for Africa and India or an all-around rifle for any part of the world, the writer used a .375 H. & H. Magnum magazine rifle, weight 8½ pounds, which in his humble opinion stands alone, and in fact is the best all-around rifle made today, inasmuch as one can use the 235-grain copper-pointed bullet for thin-skinned animals at long ranges, the 270-grain soft-nose bullet for heavier game at medium ranges, and the 300-grain solid-jacketed or soft-nose bullet for dangerous game, to deal a tremendous blow at close quarters. I condemn the use of light bullets for medium and heavy game, regardless of the present vogue for small-bores. Together with the .375 H. & H., the writer used a .303 British Lee-Enfield sporting rifle weighing 7¾ pounds, which was employed for almost everything with the exception of the heaviest game, the 215-grain pin-head soft-point bullet doing excellent work on rhino, buffalo, lion, leopard, and a great many large antelope. I mention this as the .303 British and the .30-40 Krag cartridges are almost identical in killing power, accuracy, and general efficiency. In fact there is nothing to choose between the two, in my opinion; and the .30-40 Krag is a very popular cartridge in America.

I am aware that many users of the magazine rifle become so proficient in working the bolt that they can get the second shot off very quickly, but the fact remains that the bolt *must* be drawn back and pushed forward again for each shot.

Double-barrel hammerless high-velocity

express rifles in all modern sporting calibers can be made in weights as follows, to give a few calibers:

Cartridge	Light Weight Pounds	Regular Weight Pounds
.22 Hi-Power	7	7¾
.25 Hi-Power	7½	8
.300 Sherwood		7½
.32-40 Winchester		7½
.240 Super Express		8
.242 High Velocity	7¾	8½
.246 High Velocity		9½
.256 High Velocity	8¾	9¼
.270 Winchester	8½	9¼
.275 or 7-mm.		8
.275 H. & H. Magnum	8½	9
.280 Jeffery	8½	9¼
.30-06 U. S.-W. R.	8½	9¼
.300 H. & H.	9	9¼
.303 British	9	9¼
.318 Westley Richards	8¾	9¼
.333 Jeffery	8¾	9¼
.350 High Velocity	8¾	9¼
.375 H. & H. Magnum (Special Light Steel)	8¾	9½
.400 High Velocity	9½	10¾
.400 Heavy Purdey		10
.400 Light Purdey		8
.425 High Velocity	10½	11-11¼
.465 H. & H. Express	10¾	11¼
.470 & .476 W. R. Express	10¾	10¾
.500		10¾ to 11¼
.577-75-650 W. R.		10¾ to 11¼
.577-100-750 W. R.		13¼

For an example, let us take the new .275 Rigby High-Power or Magnum No. 2 cartridge. For many years the .275 Rigby Mauser has held a well-deserved reputation all over the world. Originally this rifle was designed to handle the standard .275 or 7-mm. cartridge with 173-grain bullet at 2,300 f.-s. muzzle velocity, but when what may be termed the "Magnum movement" came into being—that is, the development of cartridges giving muzzle velocities of from 2,500 to 3,000 f.-s. Rigby kept up with the times by a clever adoption of the existing 7-mm. case, reducing the bullet weight to 140 grains and increasing the powder charge, with the result that the muzzle velocity was raised to 2,700 f.-s. One great advantage of this .275 "High-Power" cartridge was that it could be used in rifles chambered for its less lively predecessor, an adaptation of the sighting being the only necessary alteration.

This cartridge proved such a great success that a demand has been steadily aris-

ing for double rifles in which it could be used, but until recently such rifles have not been available. The reason is that the 7-mm. case is a rimless case, and although it is possible to build double rifles that will take rimless cartridges, certain gunmakers have always held the view that such weapons are best suited to rimmed or flanged cases. Accordingly, in order to meet the demand for double-barrelled weapons of this caliber, Rigbys have now introduced a new rimmed 7-mm. cartridge which develops practically the same ballistics as the rimless .275 "High-Power."

The powder charge consists of 40 grains of British nitrocellulose powder, and the 140-grain bullet is jacketed with the new "Nobelo" special non-fouling alloy. Apart from the fact that cordite is notoriously severe on barrels, it is so sensitive to variations in temperature that very appreciable differences in shooting are frequently obtained when using the rifle in England and in the tropics. And in the case of double rifles, the effect can be more than a mere change in elevation, for it is a common complaint that a weapon which grouped perfectly in England loses its capacity for close shooting under a tropical sun. But with a nitrocellulose powder this sensitiveness to changes in temperature is considerably less, and consequently a double rifle in which it is used can be regulated and sighted in England with confidence that it will not lose its shooting powers in a hot country.

Tests for velocity have been made with a rifle fitted with 26-inch barrels. The actual records were extremely regular, showing that the cartridges were of the highest quality, with a mean muzzle velocity of 2,600 f.s.; which in a 28-inch barrel—the British standard length for taking velocities—would come to 2,640 f.s., this being for all practical purposes the same as the 2,650 f.s. claimed in the specifications of the rifle. This is 100 f.s. lower than the velocity developed in the rimless cartridge, but Messrs. Rigby are wise to modify the ballistics a trifle when designing a cartridge especially for double rifles. The pressure developed in this new cartridge is a bare 17 tons, which is a comfortable figure for a double rifle, and if the higher velocity had been decided upon the pressure would have had to be such that it would not have been possible to keep the weight of the rifle down to the same point. As it is, these rifles can be built to weigh but 7½ pounds—only a pound more than an ordinary 12-bore shotgun, while the general "feel" and balance are of delightful perfection.

In case some sportsman should fear that he will be losing flatness of trajectory owing to the slight reduction in muzzle velocity, below are given the trajectory figures of one of these rifles fitted with

26" barrels when the fixed sight is used:

Range in yards	100	200	250	300
Rise or fall of bullet above or below line of sight	+2.5"	+0"	-4"	-11"

It will be seen that the reduction in muzzle velocity has not resulted in any very appreciable loss of trajectory even up to 300 yards, while at shorter ranges the bullet hugs the line of sight sufficiently close to enable the same aim to be taken for a shot at any distance from 50 to 250 yards. Six shots at 100 yards resulted in a group of 1¼" x 1¼", firing right and left barrels alternately. This is an ideal weapon where extreme accuracy and a flat trajectory are essential, with no noticeable recoil.

Having covered the .275 or 7-mm. Magnum double rifle, let us now look at a larger-caliber rifle—the new .375 H. & H. Magnum, which is without doubt the finest all-around weapon for all kinds of game in the world today. In both double-barrel and magazine its three great advantages are: high velocity, flat trajectory, and great stopping power; and it has already proven very successful on all kinds of game from small deer to elephant. It has this advantage over any other rifle of similar caliber: that one can use the light 235-grain copper-point bullet on thin-skinned animals at long range, the 270-grain soft-nosed pointed bullet on thicker-skinned game at medium ranges, and the 300-grain solid-jacket or soft-nose bluff-headed bullet for dangerous game at close quarters, using the same sighting for all three loads.

Of all the cartridges which have been tried by big-game shooters, there is probably none which has hitherto served quite so many different purposes as the .375 H. & H. Magnum, the double-barrel rifles weighing 9½ and 8¾ pounds, and the magazine rifles 8½ pounds. The former, naturally, requires to be used with cases having extended rims, whereas the magazine system requires a rimless case; and the object of the additional flange or "belt" on the cartridge is to form a definite abutment to control distance of entry into the chamber, without introducing the disadvantage from a magazine point of view of an upstanding rim. In certain cartridges the "sunk" rim is left upstanding a not-easily-discernible amount above the cartridge wall, but this form of stop is less positive than the H. & H. system, which appears to possess no counteracting demerits. The solid-jacket sharp-pointed bullet, with its flat trajectory over full sporting ranges, gives place to the 300-grain bullet when it is a question of pene-

trating the hide of thick-skinned game, or of dealing a disabling blow to massive-boned animals at close quarters. Though the heavy bullet has a lower velocity than the lighter pointed pattern, the striking energy is about the same. Hitting power is, in fact, a function rather of the powder-holding capacity of the cartridge than of the particular pattern of bullet. What the heavy bullet lacks in velocity it makes up in weight, so that the deal is quits on an energy comparison.

It will be seen that the improved 235-grain bullet, as used with the single rifle, gives muzzle velocity of 2900 f.s., a figure which justifies the adoption of 3000 f.s. as a round-number expression of what the new cartridge is capable of doing. The double-barrel rifle has but 50 f.s. less velocity, whilst the 300-grain bullet gives 2421 f.s. and 2370 f.s., respectively, in the two rifles. The energy values are obviously on a high scale: 235-grain—4330 f.-p.; 270-grain—3924 f.-p.; 300-grain—4000 f.-p., and fall short only of those of the .450 Express group of cartridges, which are now made in somewhat larger diameters than formerly to comply with the Indian arms regulations. These latter cartridges have a muzzle energy in the neighborhood of 5000 f.-p., so that the present .375 Magnum cartridge may be accepted as a thoroughly satisfactory example of what we may term the African type of cartridge; that is, one which combines a very flat trajectory over maximum sporting distances with the equally-important requirement of a smashing blow at hard-skinned and dangerous animals encountered at short ranges. The large-diameter bullet gives a more reliable blood trail than can be regarded as normal for military-caliber cartridges. The following diagram of trajectory over the first 300 yards of flight is particularly interesting, since it shows that the bullet hugs the line of sight with astonishing persistency for practically the whole of that distance.

	Muzzle	100 yds.	200 yds.	300 yds.
Line of aim	2.4"	0.0"		
	.75"	0.0"	8.9"	

The assumed sighting distance is 200 yards, but the conditions are really those of a gunmaker's sighting for 100 yards. At this distance the bullet is theoretically 2.4" above the mark aimed at, and assuming that aim is taken at the lower edge of a square bullseye 4 inches in diameter, the surplus elevation amounts to no more than centralizing the group in the upper half of the bull. At 200 yards the mean level of the shot would drop to the lower edge of the bull. These conditions indicate that no alteration of aim would be necessary for the first 200 yards, but after that it would be necessary to hold a little higher, or else take a little more foresight.

(Continued on page 36)



THE WORKSHOP OF J. BUSHNELL SMITH, THE LARGEST HANDLOADER IN AMERICA

An Introduction to Reloading

By TOWNSEND WHELEN

Part III. COMPONENTS

CARTRIDGE cases: Most of you will begin your reloading with the fired cases resulting from the use of factory ammunition, but to obtain the best results you should know certain things about these cases. To begin with, we must separate all fired cases into two classes: First, those which have at any time been fired with a mercuric or fulminate primer, that is, a primer in which fulminate of mercury constitutes one of the ingredients of the mixture. In this class also we must place all cases that are more than about ten years old. Second, those cases which have never been fired with other than non-mercuric or non-fulminate primers, and which in addition are not more than about ten years old.

When a cartridge case is fired with a mercuric primer, the mercury at once combines with the brass, rendering the latter more or less brittle. That case, if reloaded, will split or crack sooner or later. It may crack the first time it is

reloaded, or it may last for five or ten reloadings. As it does not have as long a reloadable life as the second type of case, it is not so economical, and in some instances not so safe, to reload. A case also changes its grain-structure as a result of age and strain, and becomes brittle in time. We call cracks and splits from this cause "season cracks," and cases that are ten or more years old are almost certain to show a large percentage of season cracks. For this reason all ammunition made during the World War should now be looked upon as not suitable for reloading.

A simple split or crack in the case is not dangerous to either the shooter or the rifle if the crack occurs in the neck, as it usually does; but a case that is split before firing, or that splits in the act of firing, will usually give a miss on the target. If it splits before firing, the cartridge will not be waterproof, and the primer and powder may deteriorate. If a case that is

cracked at the neck be loaded into the rifle, and the cartridge afterwards be extracted without firing, the bullet may remain in the bullet seat ahead of the chamber, and the powder may spill in the chamber and action, necessitating the use of a cleaning rod to knock the bullet back out of the bore, and tedious removal of the powder.

A case may upon firing split near the head, and powder gases flash to the rear. Such instances have been very rare, and I personally think that there is very little danger in firing mercuric or old cases with reduced or moderate charges; but I would caution very strongly against using them for any load which approaches the maximum in pressure. I myself do not throw away such cases, but use them for reduced loads, and for such only.

Frankford Arsenal cases in .30-40, .30-'06, and .45 A. C. P. calibers have always been loaded with nonmercuric primers, and are excellent for reloading; except

that in late years most of the Frankford .30-'06 loaded cartridges have had the primers crimped in. It is extremely difficult to punch out these primers; and then, before new primers can be inserted the crimp must be reamed out of the primer pocket—a most delicate operation, which if not done just right may cause all kinds of trouble, with perhaps danger from leaky primer pockets. I most decidedly think that it does not pay to monkey with fired cases that have had their primers crimped in.

The best .30-'06 cases of all for reloading are new empty unprimed Frankford cases, which members of the N. R. A. can purchase from the Ordnance Department through the D. C. M. for 83 cents a hundred, plus packing charge. They should be primed with the F. A. No. 70 primer (nonmercuric) or the Remington No. 8½ Kleanbore nonmercuric primer.

Since 1932 all Winchester and Remington factory cartridges have been primed with nonmercuric primers, and fired cases from these cartridges are excellent and durable for reloading. Much development work on primers is being done at the present time, and it is possible that almost any day the other cartridge companies may begin loading their cartridges with nonmercuric primers. This will not be to accommodate reloaders, however, but because in the opinion of these companies the new primer will be more stable and surer of fire than the old.

On the range, guard your cases against dust and mud, wiping them off if necessary; and when you get back home place them in cigar boxes marked with the number or name of your rifle. Then as soon as you can conveniently do so, de-cap them. It is not necessary to wash cases that have been fired with smokeless powder, provided that they will be fired within six months after reloading. Cases fired with black powder, or which when reloaded will be left for more than six months before firing, or will be used in the tropics, should always be washed before reloading. The method of washing described in the Ideal Handbook is the best. It was developed in 1902 by Dr. W. G. Hudson, and has been used ever since with perfect results. It causes no damage to the brass.

It should be specially noted that cases which have been fired in a certain rifle will be expanded all over to fit the individual peculiarities of that particular rifle, and they will seldom fit the chamber of another rifle of the same make and caliber unless they are resized in a full-length resizing die before being reloaded.

Primers: Only nonmercuric primers should be used for reloading. These are the Frankford Arsenal primers, and the Winchester and Remington primers which are particularly listed and marked as

"nonmercuric." There are three general sizes of primers: the large rifle size for the larger sporting and military cartridges, the small size for the smaller rifle cartridges and pistol cartridges, and a third size for certain makes of the .45 Auto Pistol cartridge. The Frankford Arsenal No. 70 primer (nonmercuric) which members of the N. R. A. can buy from the Ordnance Department through the D. C. M., and which lists at \$1.30 a thousand, plus the packing charge, is of the large rifle size and will fit almost all of the large-size military and sporting rifle cartridges. It is nonmercuric but not non-corrosive, and when it is used the bore of the rifle must be cleaned with water not later than the evening of the day it is fired, to avoid corrosion.

The proper sizes of the Remington and Winchester nonmercuric primers to fit all makes and calibers of cartridges are given in a very convenient table printed in the Belding & Mull Handbook. These Remington and Winchester primers are both noncorrosive, but they are not so marked on the box they come in because their makers will not guarantee the noncorrosiveness of any reloaded cartridge. Ordinarily, when you use these primers the resulting fouling will be noncorrosive; that is, the fouling itself will not cause rust. However, if a beginner were to load a cartridge with a very light charge of high-pressure powder,—so light that the powder would burn at a pressure far below that for which it was designed, the fouling of the powder itself might be slightly corrosive, despite the noncorrosive qualities of the primer.

Primers may be ordered from your regular sporting goods dealer, and can be shipped to you by express, but not by mail.

Bullets: As the technique of reloading is easily mastered, the main element of success lies in the selection of a proper bullet, and its loading so that it will be correctly presented to the rifling when the powder begins to burn. The bullet is the one most important part of a cartridge. It must fly accurately to the X-ring or the vital spot, and when it arrives it must do the work desired of it. We classify bullets under a number of different heads, thus:

Composition

- Lead
- Lead gas-check
- Full jacketed
- Expanding jacketed

Purpose

- Target, short range
- Target, medium range
- Target, long range
- Small game
- Varmint
- Deer
- Big game

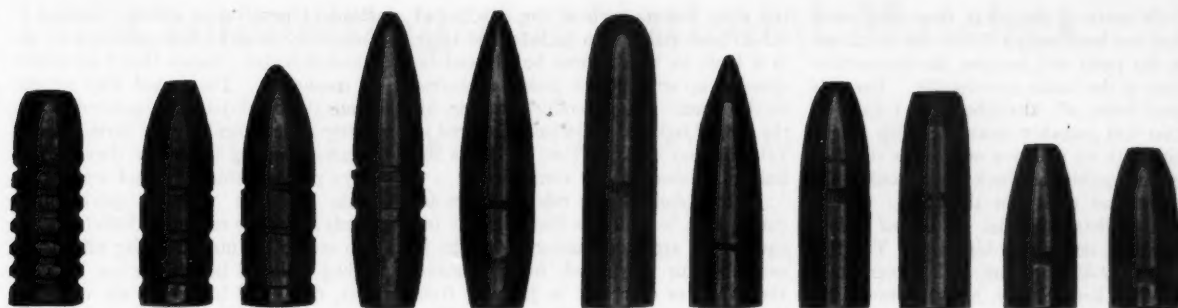
Economy

- Lead, self-moulded
- Lead, purchased
- Gas-check, self-moulded
- Gas-check, purchased
- Jacketed, moderate price
- Jacketed, high price

Lead and gas-check bullets are most economical if you mould them yourself and do not charge for your labor. They may be purchased ready-moulded, sized, and lubricated from the companies who make bullet moulds, and from certain individuals making a business of their preparation. They are limited, generally speaking, to velocities not to exceed 1600 f.-s. for plain lead bullets, and 2,000 f.-s. for gas-check bullets. Due to these moderate velocities and the construction of the bullets, in calibers of .30 and smaller they are not as a rule good killers on big game. Also, as a rule, the very finest accuracy is not attainable with them; groups of around 3 inches at 100 yards being very typical of these bullets when properly made and loaded. However, there are many exceptions to these statements.

The diameter of lead and gas-check bullets is important. They must be the full groove diameter of the barrel, or even larger, when smokeless powder is used. The handbooks will tell you, for example, that the groove diameter of Krag, Springfield, and other .30-caliber rifle barrels is from .308 to .310 inch, and that lead and gas-check bullets for use in them should be sized to .311. In general this is true, and is good dope to follow, yet you will find that if the groove diameter of your barrel is .308 you can size your bullets to any diameter between .308 and .311 and get practically identical results. On the other hand, if the groove diameter of your barrel is .309, and you size your lead or gas-check bullets to .308, the accuracy will probably suffer. The chamber of the rifle must also be considered. I have seen many custom-made .30-40 and .30-'06 barrels that had such tight chambers that cartridges loaded with .311 bullets could not be gotten into them. Obviously the thing to do is to expand your case necks and resize your bullets to a smaller diameter, but not less than groove diameter. The Ideal Handbook tells you how to measure the groove diameter of your barrel, and Ideal and Bond lubricating and sizing presses can be had with dies to size bullets to any diameter desired. Bullet moulds usually cast bullets a little large so that they can be sized down as desired.

The diameter and weight of a bullet, the shape of its point, and the velocity with which it is fired, determine the work it will do. You can shoot a grouse, duck, or squirrel through the body with a sharp-pointed .35-caliber or smaller lead bullet at low or medium velocity, and damage



AN ASSORTMENT OF BULLETS FAMILIAR TO THE RELOADER—ALL .30 CALIBER. LEFT TO RIGHT: SQUIBB-MILLER, PLAIN CAST; HOLLOW-POINT GAS-CHECK; SQUIBB GAS-CHECK; CAST BOAT-TAIL; M1 SERVICE; .220-GR. Krag; 150-GR. BRONZE-POINT; 165-GR. HOLLOW-POINT; 170-GR. SOFT-POINT; .30-30 BULLET, 110-GR.; 110-GR. .30-'06 BULLET



LEFT:
.45-70 CARTRIDGE
AS USED IN OLD
.45-70 SPRING-
FIELD ARMY
RIFLE AND
OTHER RIFLES.

RIGHT:
CHERRY USED IN
FORMING THE
CAVITIES IN
BULLET MOULDS



A GROUP OF WELL-KNOWN RIFLE CARTRIDGES. LEFT TO RIGHT: .22 HORNET; .25-20 S. S.; .250 SAVAGE; .25 REMINGTON 7-mm.; .30-40 Krag; .270 WINCHESTER; .30-'06; .257 ROBERTS; .220 SWIFT; .22 NIEDNER; .22 LOVELL; .25-20 REPEATER.

little more of the meat than you would had you been using a .22 rim-fire cartridge. A flat point will increase the destructiveness of the bullet considerably. The only lead bullet of .30 caliber that I know of that will probably destroy enough animal tissue to be effective on deer is the 169-grain Squibb gas-check bullet with a flat point and cavity in the point. Larger lead bullets with flat or hollow points, however, do well on big game. The 165-grain .32-40 flat-point bullet, even at its original low velocity, has performed well on deer for many years. The .40 and .45-caliber bullets of more than 300 grains weight, with either flat or round points, and at low black-powder velocities, have always been excellent killers on all our big game. Of course their low velocity and consequently curved trajectory place a decided limit upon their sure-hitting range.

Lead bullets cause less frictional wear on the bore of the rifle barrel than do jacketed bullets, but the difference is not so much as the literature of the reloading-tool companies would have us believe. I imagine that we could probably fire 25,000 of the 170-grain jacketed bullets with light non-erosive powder charges through a .30-caliber barrel without noticing any appreciable frictional wear. I have seen 89,000 lead bullets fired through a barrel, and the frictional wear did not exceed .0001-inch. It is lack of proper cleaning that usually wears out a barrel, and also the erosion at the breech caused by the hot powder gases of truly high-power loads. But when we realize that it costs a good many hundreds of dollars' worth of ammunition to wear out a barrel that can be replaced for from \$10.00 to \$30.00, the matter of barrel wear loses much of its interest for us, except in the case of rifles of very small bore and very high intensity, in which erosion is rapid. A .22-caliber Magnum cartridge having a muzzle velocity of 3500 f.-s., for example, can be counted upon to wear out its barrel by erosion in from 2,000 to 3,000 rounds.

There are two price ranges for these jacketed bullets, some bullets listing at from 85 cents to \$1.25 a hundred, and others around \$2.70 a hundred. The difference in price is not due so much to quality, design, or weight as it is to the quantity of production. When a company makes many millions of a certain bullet each year they can afford to sell that bullet at a much lower price than those bullets which are produced in lots of only a few thousand at a time.

Jacketed bullets are capable of being fired at much higher velocities than lead or gas-check bullets. They do not strip from the rifling at these high velocities, and as the jacket covers the lead at the base of the bullet, the base is not melted by the hot powder gases. Some few of

the older bullets such as the .30-30 and .32-20 have rather thin jackets, and there is a limit to which these bullets can be speeded up without the jacket rupturing in the bore. But generally speaking, all the newer jacketed bullets can be fired at velocities up to 3,000 f.-s., as far as the bullets themselves are concerned.

Jacketed bullets as a rule are more accurate than lead or gas-check bullets because they are more uniformly made, in carefully cut dies; and, being tougher, they are less deformed in jumping from the cartridge case into the rifling. They leave the muzzle in more perfect condition, and fly more accurately through the air. There are many jacketed bullets that are good for 2-inch groups at 100 yards in rifles noted for their accuracy, and we have a few bullets that are good for 1.5-inch groups in gilt-edge rifles. However, not all jacketed bullets of the same caliber will give equal accuracy. Some are made more carefully and uniformly than others, or are so shaped and proportioned that they naturally fly through the air with less deviation. Shooters who read *THE AMERICAN RIFLEMAN* will soon learn which bullets have a reputation for the best accuracy.

Full-jacketed bullets are usually best for target practice at distances over 200 yards. The new 172-grain boat-tail bullet of .30 caliber for the .30-'06 M1 Service cartridge is the most successful mid- and long-range target bullet we have ever had, and if you are a member of the N. R. A. you can purchase it from the Ordnance Department through the D. C. M. for 57 cents a hundred, plus the packing charge. For ranges under 200 or 300 yards we can often get fine target accuracy from many expanding sporting bullets. For example, I have seen superb accuracy from the .30-caliber Western 220-grain soft-point boat-tail bullet, and the .30-caliber Remington 220-grain Express Mushroom bullet; and also from many of the Western Tool and Copper Works bullets.

Full-jacketed pointed bullets of moderate weight also make excellent small-game bullets when fired at comparatively low velocities. Bullets like the 150-grain full-jacketed pointed bullet for the old .30-'06 service cartridge, driven by 18 grains of duPont No. 80 powder, and the 87-grain full-jacketed, pointed bullet for the .250-3000 Savage cartridge, with 12 grains of the same powder, will pass through the bodies of grouse, ducks, squirrels, and small fur-bearing animals, without spoiling either meat or skins. However, when we speed up these full-jacketed pointed bullets to velocities of 2,000 f.-s. and over, their destructiveness on animal tissue *often* becomes very great. They *frequently* turn over sideways when they strike an animal, and "buzz" through

instead of penetrating cleanly, making a wound fully equal to that produced by an expanding bullet. Notice that I say *often* and *frequently*. The reason why we do not use these full-jacketed, pointed, high-velocity bullets regularly for varmints and big-game shooting is because they do not always perform this way, and are not as certain to give serious, quick-killing wounds as are the expanding bullets.

To secure the utmost killing effect, expanding jacketed bullets for use on varmints, deer, and big game are made in three general types: soft-nose, hollow-point, and hollow-point with a pointed cap in the hollow to facilitate expansion and cut down air resistance. None of us knows which type is best with respect to killing power. The soft-nose bullets cannot be made with truly sharp points because the points would dull in commercial handling. Hollow-point bullets of necessity have a flat form of point which increases air resistance. Were I choosing a game bullet for extremely long-range shooting, I should take one of those with a cap which gave it a true sharp point, because of the lessened air resistance and consequently flatter trajectory. But if almost all my game shooting was to be at distances under 150 or 200 yards, I should base my selection upon the accuracy of the bullet and its reputation as a game killer, and not upon the shape of the point.

The manufacturers design their expanding bullets to expand properly at certain velocities and on certain game. For example, they make .32-20 soft-point bullets with relatively thin jackets and a soft lead core to expand on woodchucks and jackrabbits at velocities of around 1500 f.-s. The usual .30-30 bullets are designed to expand on the relatively soft bodies of deer at from 2000 to 2300 f.-s. If you speeded these .30-30 bullets up to 2700 f.-s., and then used them on heavy, tough moose and elk, you would find that they would often expand too easily, would make superficial wounds, and would not always penetrate to the vitals of these large and tough animals. The Western Cartridge Company makes a .30-caliber bullet of 220 grains for the .30-'06 cartridge, loading it to give a muzzle velocity of 2330 f.-s. It has a soft point, boat tail, a thick jacket, and only a pin-point of lead exposed at the tip. It is designed for large, heavy animals alone, and has proved to be a mighty fine bullet for lion, the larger African antelope, moose, elk, and Alaskan brown bear. But also it has proved to be a very uncertain bullet for deer, as it often does not expand at all on the relatively much softer bodies of these animals, but instead penetrates cleanly.

I must say something here about the seating of bullets in the cartridge cases. A cartridge must be slightly smaller than
(Continued on page 33)

Concerning the National Matches

"Things The Shooter Never Sees"

By C. B. LISTER

Secretary-Treasurer, The National Rifle Association

TO THE average shooter, the Small Arms Firing School and the National Matches mean an opportunity for two or three weeks of living under canvas, expert coaching, and shooting which, with a little luck, may bring its reward in cash, medals, or trophies. He takes it for granted that when he arrives at Camp Perry a tent will be ready for him, with all the necessary equipment in the way of a cot, blankets, wash basin, and even a broom with which to clean up. He accepts the fact that a National Match grade rifle and all the ammunition that he has time to shoot will be there waiting for him. He takes it for granted that after having, at slight inconvenience to himself, made entries in the various matches, he will be issued a squadding ticket showing him exactly what firing-point he is to use in each match, and the exact time that he is to fire. He expects to find, and does find, a score card bearing his name and address already on the scorer's bench at the appointed time and place. He takes it for granted that when the match is over his score will in due course appear on the bulletin board, and that shortly thereafter he will be able to go up to the N. R. A. entry office and collect his cash prizes or medals. He expects to find available a well-printed program, a well-stocked Commercial Row, medical attention if he needs it—practically everything, as a matter of fact, that he finds at home or at his office for his comfort and the business at hand.

Only those individuals who have attempted to set up and handle a small local shooting tournament ever give a second thought to the hours, weeks, even months of advance preparation, careful planning, and checking and re-checking that someone has to do in order to make the smooth-running National Match set-up possible.

The planning for each National Match actually begins during the preceding match. All the Army and Marine Corps Staff officers and Staff Divisions, and members of the N. R. A. Staff, are furnished with special copies of the Na-

This is the third of a series of articles briefly describing some of the activities behind the scenes at the National Matches. Stepping from his Pullman or out of his car at Camp Perry, and finding everything ready for him, the average rifleman gives no thought to the weeks or months of preparation and planning which have made it possible for the Matches to be run with approximately clock-like regularity. The accompanying article covers the advance planning from the standpoint of mechanical detail. In the next and last article of this series the problem of man-power and the creature comforts of 5,000 or more inhabitants of camp during the National Match period will be discussed.

tional Match program containing a blank page for notes facing each printed page. From day to day notes are made in these programs relative to possible improvements in the schedules, match conditions, clarification of language, etc. At the conclusion of the matches these programs are turned in to the Executive Officer and to National Rifle Association headquarters. The memoranda made on the spot constitutes the basis for the preliminary planning which is immediately begun for the following year's matches.

After the competitors and Regular Army personnel on the range have scattered to their homes and stations, the Executive Officer of the National Board for Promotion of Rifle Practice and the officials of the National Rifle Association return to Washington. Immediately work is begun with the War Department Budget Committee to secure the necessary funds for the conduct of the matches the following year. Figures must immediately be compiled by the National Board Executive to show the cost of transporting each team, of repairing and replacing the rifles, the amount of ammunition expended and the amount of new ammunition required for the following year's matches, the cost of transporting the troops for range personnel, the cost of repairing and replacing tents and buildings, repairing and improving the range, and literally a hundred and one similar items of expense. Contacts must be established with the Chief of Staff of the Army and the Major General Commandant United States Marine Corps, and tentative arrangements made so that troops will be available for the manning of the range the following year.

Before troop assignments can be made for the National Matches, all the summer maneuvers and training-camp activities with which the Regular Services are charged, such as the C. M. T. C., R. O. T. C., Reserve Camps, etc., must be taken into consideration. The National Matches must be "sandwiched-in" with the general plan of summer activities so that troops can be available for all requirements.

After the Budget goes to Congress, hearings have to be attended before the House and Senate Committees, and as a rule pleas have to be made for an increase in the amount of money set up in the Budget. Inasmuch as there are always some people urging Congress to cut National Defense funds, the Adjutants General of the various states must be contacted by the N. R. A. so that they will indicate to Congress their approval of the National Match Appropriation. Constant contacts must also be maintained with such organizations as the Reserve Officers' Association, National Guard Association, and American Legion. Frequently hundreds of letters and telegrams have to be written on this important phase of the problem. Meanwhile no actual planning of the program or physical preparation for the matches is possible, because the program depends upon the amount of money finally approved by Congress.

It is usually late Spring before the Appropriation Bill is passed by both the House of Representatives and the Senate. After the amount of money available is known, the length and size of the matches can be determined by the complicated arithmetic of dividing the various expense items into the available appropriation. The next step is a series of meetings by the National Match Program Committee. This Committee consists of the Executive Officer of the National Matches, the Executive Officer of The National Board for the Promotion of Rifle Practice, the Executive Vice-President of The National Rifle Association, the Chief of Infantry, an officer from the Headquarters of the Marine Corps, and an officer of the training sec-

tion of the General Staff. After this Committee has prepared its recommendations, these are studied by the General Staff and a report is made to the Assistant Secretary of War. Only after the Assistant Secretary of War has approved the program can the details be worked out. It is then necessary to contact the Adjutant General of Ohio and ascertain the dates between which the Ohio National Guard will be using Camp Perry for summer training-camp purposes. The Adjutant General of Ohio has always been most cooperative in so establishing the period for his summer encampment during the year when National Matches are to be held, that the matches will be concluded before too late in the season.

Next is undertaken the task of fitting together the jig-saw puzzle represented by a score or more of matches fired at different ranges and requiring different period of time and a different number of shots. While the actual squadding of individual competitors is done in the Statistical Office, as was described in our December issue, key sheets indicating exactly how the various relays can be shifted about from range to range without conflict have to be prepared in the Spring before the program can be printed. Some of the factors that have to be considered in preparing these key sheets are the number of target operators and scorers who will be available each morning and afternoon, the probable number of competitors in each match, the length of time required for each competitor to fire each match, the time required for the competitor to move from one range to another, and finally the amount of work that the Statistical Office will be able to carry on during any 24-hour period with the crew which is available for statistical work.

Some idea of the amount of work involved in this preliminary planning can be had if consideration is given to the fact that a relatively few years ago a period of fourteen days was devoted to National Rifle Association Matches which today are crowded into a six-day period.

With the key sheets completed and the schedule of matches finally worked out, estimates must be made as to the number of competitors that may logically be expected in each event. Score cards must be drawn up in all their variety of sizes, bids received for printing, and contracts awarded. Registration cards and entry blanks, and finally the program itself, must be put through the same process. The forms required for N. R. A. matches are prepared at N. R. A. Headquarters, and those for the National Matches at the offices of the National Board for the Promotion of Rifle Practice. Printing contracts are awarded by the National Board to the extent of available funds. Contracts are

let by the N. R. A. for the remainder of the requirement.

Those who have tried to prepare a small program for a local tournament are the only ones who can fully appreciate the hours of time that go into typing the rough copy, checking galley proofs, arranging the galleys into page form, inserting cuts, and approving final proofs.

With the various printed forms all in the hands of the printer, the schedule of matches must be checked to determine the various designs of medals that are required, the number of each kind needed in gold, silver, and bronze, and the probable requirements for skidoo decoration. An artist must be set to work by the N. R. A. on the design of several entirely new medals each year. A number of designs are submitted in pencil sketches. Those which are approved are then modeled in clay. These clay models are corrected for various details, just as a printer's galley proof is corrected. From the clay a plaster cast is made, and from that a bronze casting many times the size of the intended medal. This casting is placed in a die-cutting machine working on the planograph principle, which reduces the design to the proper medal size. From the "soft-steel" die a lead impression is made, which in turn must be checked to discover any deformities that may have crept in during the lengthy die-cutting process. After the lead impression has been approved, the die is hardened and the contract let for the finished medals. Here again the closest coordination must be maintained between the Executive Officer of the National Board for the Promotion of Rifle Practice, who lets medal contracts to the extent of his available funds, and the N. R. A., which lets the contracts for all requirements not covered by National Board appropriations. Even after the medals have been delivered to the N. R. A. or the National Board for the Promotion of Rifle Practice, they must all be checked for finish and fineness. They must then be assembled with the various ribbon clasps, top bars, and medal ribbons into completed decorations ready for award. Medals for the National Matches are assembled and completed at the National Board offices; those for N. R. A. matches, at Association Headquarters. Before the medals can be awarded they must be sorted into proper match groups, and assembled into shipping containers properly labeled so that when they arrive at Camp Perry they can be given to the winners without delay.

Again basing estimates upon the probable number of competitors in each match, the cash prize checks must be ordered by the N. R. A. Specifications must be given to the printer so that the checks for each match will be padded and labeled separately.

While this preparatory work is being done in Washington, scattered throughout the United States are a hundred or more highly valuable silver and bronze trophy cups, statues, and plaques. A record must be maintained at Headquarters showing where each of these trophies was last sent, and who signed for it. About two months before the matches are scheduled to be fired, letters must be sent to all trophy holders and arrangements made to have the trophies returned to the Washington office, or brought into Camp Perry by the competitors when they report there. All trophies which have been bent or damaged in any way must be called in and a jeweler put to work on the necessary repairs. Damaged shipping cases must be repaired.

Meanwhile, advance stories are being sent to newspapers and outdoor magazines throughout the country. These not only take the form of general stories about the matches and historic trophies but personal stories are written about the men who won trophies in the preceding year and who are expecting to return to the National Matches and make an effort to repeat their victories. The Army and N. R. A. publicity offices cooperate in this activity.

After all the medals, printed forms, and trophies have been received from the various printers and jewelers, and have been checked and approved, they must be packed, labeled for each identification, and shipped by various means of transportation to Camp Perry. At the same time reams of mimeograph paper, thousands of paper clips, pounds of rubber bands, pencils, chalk, mimeograph machines, addressograph plates, and all the rest of the multitude of stationery items, must be ordered, boxed, and shipped to Camp Perry. Before the competitors arrive in Camp, the Army and N. R. A. office personnel in the various camp offices must sort out the various cases and get the thousands of cards and the mass of other supplies properly stacked, ready for immediate and extremely high-pressure use. Buildings must be cleaned up, new shelves built, electric lights installed, and everything else possible done to render it more comfortable for the shooters to make entries, get their squadding cards, and finally draw their prizes.

In addition to all these office details, the Executive Officer of the National Board must prepare the necessary estimates to enable Frankford Arsenal, Springfield Armory, Rock Island Arsenal, and commercial manufacturers to prepare arms, ammunition, targets, target cloth, and other accessories; all of which must be delivered to Camp Perry and on the ranges ready for use by the time the competitors arrive.

The competitor arriving at Camp
(Continued on page 37)

A Method For Evaluating Shot Patterns

By L. S. FOLTZ

AT intervals for more than thirty years I have had occasion to test the shooting of my shotguns, and in estimating their performances I have until recently adhered to the custom of considering the percentage of the shot charge placed in a 30-inch circle at 40 yards. However, all who have investigated the matter know that patterns of the same percentage can differ considerably in character, and there is no accepted method of recognizing and describing this difference. In what follows there is set forth a method of evaluating shot patterns which is an improvement over the method now in use, and which has an engineering basis.

The shotgun, considered as a tool, must be judged by performance, and this of course is closely associated with the matter of ammunition. A shot pattern is made jointly by a gun and a cartridge; and the pattern, properly analyzed, judges the two as a combination.

Since the bore of a shotgun is circular and the dispersion of the shot in flight is largely radial, it must be evident that a proper analysis of a shot pattern should be symmetrical with respect to a circle and to its radius; and this is the foundation principle of the method of analysis to be presented.

Let the radius of the outside or large circle, Fig. 1, be R units, and the radii of the concentric circles, that contain 10%, 20%, 30%, etc. of the area of the large circle, be r_1, r_2, r_3 , etc., respectively.

The area of the large circle is πR^2 or $3.1416R^2$, and the area of the smallest circle being πr_1^2 and 1/10 or 10% of the area of the large circle, the relation is $\pi r_1^2 = \frac{\pi R^2}{10}$; or, $r_1 = \frac{R}{\sqrt{10}} = (R) (.316)$.

The radius of the next circle is found from the expression $\pi r_2^2 = \frac{2\pi R^2}{10}$ or,

$r_2 = \frac{R}{\sqrt{5}} = (R) (.447)$; and so on, the

various radii having the following values:

$r_1 = (R) (.548)$
$r_2 = (R) (.632)$
$r_3 = (R) (.707)$
$r_4 = (R) (.774)$
$r_5 = (R) (.836)$
$r_6 = (R) (.895)$
$r_7 = (R) (.95)$

To divide a 30-inch circle into ten equal concentric parts, we have:

$R = 15$	
$r_1 = (15) (.316) = 4.74$	inches
$r_2 = (15) (.447) = 6.705$	"
$r_3 = (15) (.548) = 8.22$	"
$r_4 = (15) (.632) = 9.48$	"
$r_5 = (15) (.707) = 10.605$	"
$r_6 = (15) (.774) = 11.61$	"
$r_7 = (15) (.836) = 12.54$	"
$r_8 = (15) (.895) = 13.42$	"
$r_9 = (15) (.95) = 14.25$	"

Then the circle at the center, and each ring, contains 10% of the area of the 30-inch circle, which is 706.858 square inches.

To easily divide a shot pattern in this way, select a strip of wood such as a plaster lath or yard stick, of a total length

of about 16 inches. Near one end drive through a small nail, and from this nail lay off, on a straight line on the stick, the distances 4.74, 6.705, etc. inches, up to 15 inches inclusive. With a wood bit bore holes at these points of a size to firmly hold a lead pencil. With the shot target on a large table, or the floor, place the nail at the estimated center of the shot pattern, and with a pencil in one of the holes in the stick, swing out the circle. Keeping the nail in place, change the pencil from hole to hole until all of the circles are drawn.

Now to divide these tenths into hundredths of the 30-inch circle, lay off ten straight radial lines from the center, spaced 36 degrees apart. To do this easily (see Fig. 2) use the stick just employed for drawing the circles, laying off on one edge of it the distance 9.27 inches ($9\frac{1}{4}$ inches "strong"), and mark off this distance around the circumference of the large circle; and from the points thus found, draw straight lines to the center. These sectors each contain 1/10 of the area of the large circle, and intersect the concentric circles so that the resulting areas each contain 1% of the area of the large circle.

We are now ready to analyze the pattern. Count the number of hits in each unit of area, and write the number in the space. Mark "0" on all units having no shot holes. Add all the numbers in a sector, and put the sum at the circumference (Continued on page 37)

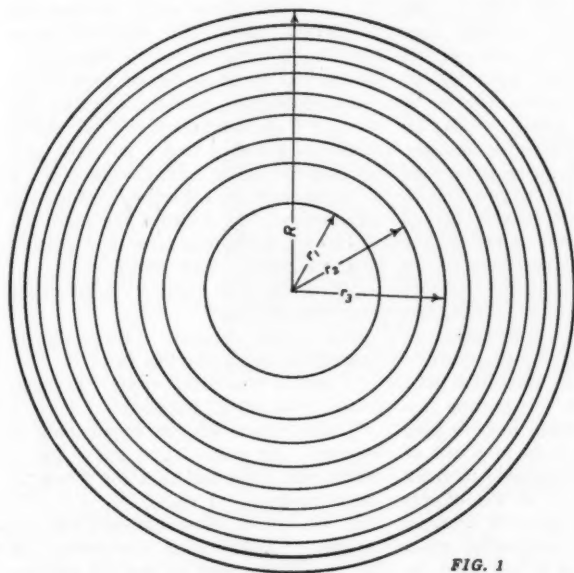


FIG. 1

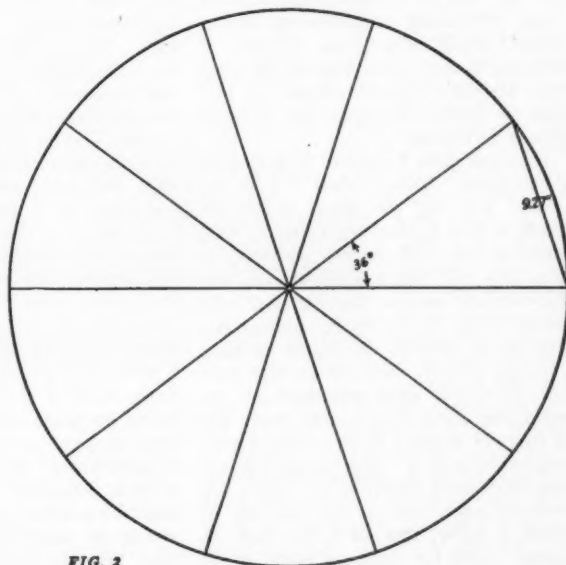


FIG. 2



Leaves From a Sportsman's Note-Book

By PAUL B. JENKINS

Advisor on Arms, Nunnemacher Firearms Collection, Milwaukee Public Museum

JUST fifty years ago I heard my father say that he would give a thousand dollars, as the saying is, if he had known enough to keep from his youth up a record of all his hunting-trips—when and where he went, with whom, what guns they used, what game they got, and of his regiment's marches in the Gettysburg campaign—as such a journal would afford the keenest of pleasures to read and re-read in the years when lessening strength should bar him from the tramps and camps that were his lifelong recreation.

Then and there I resolved to keep such a note-book. Today, while I hope its "Finis" has not yet been written, it stands in four typewritten volumes, 1200 pages in all, with maps, photographs, game-lists, rifle and revolver targets, and trap-shooting scores, covering the half-century since it was begun. It recounts shooting in one-half the States, in England and France, visits to perhaps one-half the great arms-collections of the world, and one volume records every day of fourteen months service from Plattsburg to the A. E. F. The money does not exist that could purchase it. There are probably many like it, but just one of which I know, that of Capt. Paul A. Curtis, which far surpasses mine, if not

in years yet in information and breadth of experience.

If this article were only to incite some reader to begin and continue such a record of his own, I can assure the diarist that he will be laying up the treasure of his declining years, and something that his children's children will prize beyond any other legacy. Nor, perhaps, they only. A great thinker has written: "If any man would write for posterity, let him set down a faithful daily mention of how he lived, of his family meals, his business and his pleasures, what he wore, where he went, with whom he talked and what they said; and generations unborn will peruse his story with delight when all the sermons of the moralists and all the disquisitions of the philosophers of his time shall have been forgotten." One of the leading state historical societies has published as its latest contribution to American history the day-by-day diary of a boy artillerist in the Civil War who never dreamed that he was writing historical literature but meant only to keep those at home on the farm informed of his adventures. It is laughable to think of how differently some of his officers might have acted had they ever dreamed that in the ranks they commanded was a quiet farm-lad who was to set down for

all posterity his estimate of their character alike in camp and on the battlefield.

—
An autumn week once called me to an ancient Missouri town on the Osage river. It had changed very little since the Civil War, as is still true of not a few venerable Southern hamlets. The old hotel dates from the '50s, but its elderly negro servants and its aroma of "spoon corn-bread" and candied sweet potatoes indicated that it was still the right place to stay. As on whatever errand, I had a gun-case with me, and no sooner entered than I saw a beautiful pair of Llewellyns before the old fireplace. As I signed the register I said to the white-mustached and goateed host: "Whose dogs are those?"

"Mine, suh," he said. "You're maybe interested in dogs?"

"All kinds," I said. "Especially in hunting-dogs on a day like this."

"I seen a few 'jacks' today," he mentioned. "So did I," I replied.

"Cain't reckon on 'em stayin' long in fall-time," he said. "You got a gun—maybe you could find time for a look at 'em tomorrow?" I could.

It was one of those unforgettable occasions. "Jacks" were everywhere on the "ma'sh" we went to, and my gun was

"right in the groove" for once at least. It was a great day, and the carefully-working setters retrieved our every bird.

The week's end saw me leaving for home. At the desk I asked for my bill. My host handed it to me, receipted. I took it for an advance courtesy, and pulled out my purse. "Put up you' money, suh," he said; "don't you see it says 'Paid'?" "But I don't understand it," I said; "I haven't paid it." "Well, suh," he said, "it means what it says. All I have to say is, whatever's yo' business an' wherever yo' come from, no man who kin shoot jacksnipe like you kin, kin never pay no money for a-stayin' at my hotel, suh!"

And he stuck to it. How was that for Southern sportsmanship? I wish I might give his name in appreciation, but the fact is that it was so linked with dark and bloody deeds of the long ago that if I did so there are readers even of *THE RIFLEMAN* who would accuse me of "just another Jesse James gang lie."

A party of us were hunting wild turkeys in the Ozark foothills. Staying with two bachelor brothers and their two dogs so wise on their jobs as to seem half human, we found these men the quaintest of experts, so familiar with every detail of their mountains and valleys that they practically thought alike and rarely wasted a word in communication with one another. It was just not necessary. A typical conversation on a tramp would be as follows—verbatim. One would silently point to a spot on the ground. Minutes later and a mile farther on he would say:

"Albert?"

"Uh-huh."

"Thet 'ere's thet ol' fox lives in Smith's cove."

"Uh-huh."

"He's headed fer Widder Bedott's holler after her chickens."

"Uh-huh."

Or another pointing, and minutes later:

"Otto?"

"Thet turkey-scape warn't more'n two hours old."

"Uh-huh."

"We'll find 'em in Grandad Baity's slashin'."

"Uh-huh. Spot's a-sniffin' thet-a-way now."

Spot was, and in Grandad Baity's

"slashin'" we found them,—five great birds coming on the dead run through the "bresh" to the wing-bone call in Otto's hands, as Albert devoted himself to deadly-earnest side-mouth whispers to us: "Don't move—don't move! Let 'em come—let 'em come!" We did. Mine weighed sixteen pounds.

After one great day of varied experiences at turkeys, quail—which they did not go after but whistled up to them!—chance ducks, and black squirrels (Yes, black), I heard a debate between them that I shall delight to recall while memory remains. Worn out with tramping the flinty hillsides, we "city-fellers" left the camp-fire early and turned into our blankets. The others were asleep instantly, but I lay awake, perhaps because one of those grand pointers had snuggled inside of my blanket and was snoring in my ear, and I would not deny him the intimacy he had so well earned that day. The brothers sat silent about the embers of the fire for a long time, until one, reassured by the unconscious chorus from our tent, whispered:

"Albert?"

"Uh-huh."

"These fellers air good shots."

"Uh-huh."

"They air the best shots we ever guided fer."

"Uh-huh."

"See thet preacher-feller git that ol' mallard jes' a-scootin' over thet big timber we was in by the river, an' he jes' ups an' shoots while we was a-walkin', an'

every night, I bet, an' thet gits 'em luck every time they p'int a gun!"

"Gosh, Albert!—I bet you've hit it!"

And Albert may not have been so wrong about it at that!

In Dakota Territory days when prairie-chickens were like sparrows, and young ducks paddled in every slough, our annual camping-out hunting-trip always included a veteran whose ways were an unceasing delight, though we hourly half-strangled to suppress our laughter. He had a double Parker of the 1870's "lifter-action," which he firmly believed to be the best shooting gun on earth. He would drop an extra long shot, and turn to us: "Betcha that one kind o' strained the old gun, boys, a-reachin' out that way; but when she has to, she allus does!" He never went out-doors on farm task, village errand, or hunt without a Civil War canteen filled with black coffee, slung over a shoulder, from which he drank all day.

We were at our mess-tent table one sunrise on the bank of the Vermillion where it joins the Missouri, his seat being at the end of the table just at the tent-flaps. Ducks and geese without limit were all about us in the dawn, but one especially loud wave of honking made him lean backward and look up. He exclaimed: "There's just one gun here can do it!" And reaching into the tent and seizing his beloved piece, he leaned out again and fired straight up in the air. It was the work of an instant, and we all piled out to see the last of a line of

snow-geese slide down to earth on a long slant, to be retrieved with a single buckshot through it from vent to back.

Goose-calling, wholly orally, was a great annoyance to him after his family persuaded him to invest in a double set of "store teeth." "Dentists ain't never practical," he complained; "ain't one of 'em can make chiny teeth ye can call a ol' goose with—soon's he hears it he knows ain't natural."

So in the blind we went into fits of choked-down mirth as he watched a distant goose-flock, his right hand slowly rising toward his mouth and lowering again as he estimated the likelihood of the distant line or V coming within hearing. Let the leader swing to-



down he come?"

"Uh-huh."

"You got any idee how come city-fellers kin shoot like these do?"

"Uh-huh."

"You hev! What is't?"

"They git thet preacher to pray fer 'em

ward our decoys, and instantly two dental plates were snatched out and his "Honk—Ah-honk!" rang out unimpeded—the "dentures" to be slowly replaced as the flock went on untempted, and vanished down the big river.

His last words every night and his first every morning were our especial delight. Well over seventy, he would groan with weariness about the camp-fire after finishing his plateful and drinking the last drop of coffee in the pot. "Well, boys," he would say, "you've went with the old man on his last hunt. I ain't what I uster be, an' ain't no denyin' it. Today's my last, these seventy year. Tomorrow I'll have to quit you an' go home an' wipe out the old gun an' hang it on the wall an' jes' take it out in rememberin' all the fun she an' I hev' had. It's turrible to think today's my last, but ain't no use holdin' out against Natur'; an' I've pulled trigger today fer the last time"—and groaning he would roll up in his blankets, while we dared not look at one another lest we explode in laughter.

Long ere the next dawn we would be aroused by his shout: "Git up, you fellers!—I never see no sich lie-abeds call 'emselves hunters! Here 'tis mos' sunrise an' thar's a million ducks an' geese gone by a'ready an' here's the bacon an' fried eggs done an' the coffee b'ilin', an' you still hittin' the hay! Howd'ye expect to git ducks if you ain't out an' up when they're on top o' ye?—ye'd ought-a' be out a-shootin' in the blind right now; I'd a' been, I bet ye, ef I hadn't all ye lazy-bones to feed an' git ye up an' tell ye when to shoot!"

Years of hunting with him went by, and that delicious program of gloom at night and younger-than-all-of-us every morning never failed. Immortal youth at four-score; how glorious a way to grow old!

He did not like my repeater, and made no bones about it. What he really disliked was to have it drop three birds, or now and then four, while his beloved Parker could get but two at its best before reloading. He scrutinized mine from end to end, and delivered his verdict: "I ain't sayin' but your preacher-pa he learnt ye to shoot all right, but I'm a-sayin' any Rooshian immigrant could get him birds if he had one of these here ye load at sun-up an' then shoot till the cows come home!"

I do not know that his beloved Parker was buried with him, as he would have been entirely happy to have had done, but I am sure he will have lonely moments in Heaven without it.

THE MOSSBERG MODEL 35 RIFLE

By ALLYN H. TEDMON

WHEN the Mossberg Model 35 single-shot rifle came out, I expect that

I was among the first to have one to try out. The rifle sent me was fitted with one of the Mossberg scopes, and after a considerable amount of shooting we found a few bothersome bugs; so it was returned to the factory, and when I got it back I had a hard time finding any more bugs. This rifle is in my opinion the biggest buy,—the biggest dollar's worth of rifle, to be had today in this country.

No one buying one of these Mossberg rifles should expect a sixty-dollar job for the sum of ten dollars, but, as has been proven right here in my home heath, these rifles will shoot, and they will sometimes make a sixty-dollar rifle look a bit funny, unless a good man has hold of the latter's tiller. In a local rifle club, where the members are not millionaires, six or eight of these Mossberg rifles are rendering manly service every Sunday, and at all other times when they are called upon to shoot.

The rifle I have is well stocked,—in fact it is the only small-bore rifle I have handled that compares in stock design and handling in small-bore positions with the Stevens Walnut Hill 417 rifle. The Mossberg rear sight is fine,—especially the changeable eyepiece.

When the factory first sent me this rifle I took it over to the Colorado Rifle Club range to show to the lot of hard-boiled nail-drivers that hang out there. Now, it takes something to arouse even a slight ripple of interest in this lot of fishy-eyed trigger-pullers; something quite out of the ordinary. But when I sprung that new Mossberg on them, several of them actually gave me a look. Then when I told them that the whole works could be bought for the sum of seventeen dollars, they were quite outspoken in their skepticism. Jim Gates, in fact, was not satisfied with just a look; not he. He must needs shoot the rifle; and then, after many moments of silence, he exclaimed: "Gosh, wouldn't this be a great outfit to shoot gophers with!" And you must know that this man Gates can shoot, and that he owns only rifles with prices that run several dollars over seventeen.

In shooting this Mossberg rifle from prone (and the boys who shot it had not been shooting for several months), the groups we got were good. At 50 yards groups ran like this: ten shots, 1-5/16"; eight shots, 11/16"; ten shots, 1-7/32", with eight of the shots in 1-1/16". Another eight shots made 13/16"; a nine-shot group measured 1" even; ten shots, 1-1/16"; nine shots, an even 3/4", etc. These groups were made with several different brands of long rifle ammunition, but the barrel liked Peters Filmcoat Rustless about the best; although the 3/4" group was shot with U. S. Copper-clad. At 100 yards the groups ran around 2 1/2 inches, with a 2-7/16" nine-

shot group with Remington Hi-Speed; but this 100-yard shooting was done late and hurriedly, and as I recall it, everybody took a hand. At 25 yards the rifle will do 1/2" groups easily with anyone who can hold it; and probably with a good holder who has become accustomed to it it will make some very interesting groups.

The rifle I have here shoots well. It is perhaps not quite as accurate as the two high-grade Stevens rifles we have, but with the average man at the helm the shooting would be very much the same. This also applies to the Winchester 52's and the big Stevens Walnut Hill, which in my opinion are the best small-bore rifles to be had,—when the 52 is made up with a really good stock and a suitable weight of barrel. But when you get down out of the top row and begin to compare the Mossberg with the rank and file of small-bore match rifles, you will find that it will hold its own any time it is given an even break.

I own several scopes, but the only ones that are better than this seven-dollar Mossberg glass are my Winchester 5A and my 8-power Malcolm. [Evidently this statement should not be taken to include mounts.—Ed.]; and for the average fellow who simply cannot afford to put fifty dollars into a rifle and thirty into a scope, I do not know of an outfit that can compare with this Mossberg contribution. I asked the makers how they did it, and was advised that the secret lay in the fact that the Mossberg Company manufactures rifles, and rifles only, leaving the radios, washing machines, and roller skates to outfits that aren't willing to confine their efforts to one good thing.

For the big boy whose shekles are scarce and far between, and for the family man whose family eats the price of a Winchester 52 every week but in whose blood runs the fire of a rifleman, this Mossberg rifle is a Godsend. Don't knock it, for it is the best friend the small-bore game has. And if the other fellow is shooting one, you will do well to take the matter seriously.

THE WEE WEAVER, SCOPE MOUNTS AND SHOTGUN CHOKE

Editor, AMERICAN RIFLEMAN,

Dear Sir:

Some time ago I wrote to Mr. W. R. Weaver in regard to mounting the Model 3-29 Wee Weaver scope on the Springfield .30-'06. He informed me that although he thought the scope would stand the recoil O. K. he would not recommend it, as it was made expressly for small-bore rifles.

With the intention of doing some experimenting, I ordered one of these scopes, which I received in due time; and to say that I was pleased is putting it mildly, as it

certainly is a wonderful little scope; though I was rather disappointed in the mounts.

I obtained some angle iron, 1/2-inch key stock, and a small piece of 3/16-inch spring steel, and proceeded to make my own mounts. Not having anything to serve as a pattern, it was a slow job, but in due time was completed.

The first time I took the outfit out I fired fifty rounds, and the scope stood the jar perfectly, as far as I could see. Later I fired forty rounds, and experienced some trouble with the cross-hairs rotating in the tube. Upon returning home I found the threaded collar in the rear of the scope, loose, so made a spanner and tightened it up. This may remedy the trouble.

The scope is all that one can ask, apparently has no parallax, and is bright and clear to the very edges of the field; and the amazing part is the low price.

And here is a kink in regard to removing some of the choke in shotgun barrels: The piston-pin hone used in all first-class garages for fitting piston pins, works fine in either an electric drill or drill press, and with it a person can hone out a little of the choke at a time, leaving the bore in the barrel a true circle and burnish-finished. This is one of the best methods I know of for reducing choke, and is very simple. Proof-shooting is necessary to insure the right amount of choke removal.—RAY R. GESNER.

"One More Bend"

By Edward S. Parker; The Kaleidograph Press, Dallas, Texas; \$1.50.

THIS is a little book of sixty-four pages containing poems for sportsmen and outdoorsmen, written by one of them. There are thirty poems in all, most of them short, all of them easy to read.

Poetical tastes differ widely, but it is safe to say that in this little volume every lover of the outdoors will find something to his liking. Two of the poems in particular appealed to us: the first one, "One More Bend," and "Kentucky Rifle." "The Rifleman" would appear to have been written for this magazine.

The author kindly sent us "Kentucky Rifle" for publication in this magazine before the book came out, but we were delayed in publishing the poem, and now with the book available we probably shall not print it.

Many sportsmen will wish to add this little volume to their libraries.—L. J. H.

Principal Contributors in This Issue

NOTE: Some of the contributors in this issue are so well known that comment is unnecessary.—Ed.

FRANTZ ROSENBERG, of Lillehammer, Norway, is a fine example of the

broad, well-rounded rifleman, he being thoroughly familiar with the target, military, and hunting phases of the game. Probably his greatest pleasure lies in hunting, and he has hunted all sorts of game, in about all parts of the world. He is a recognized expert in his own country, where his knowledge and experience have been of service to the government.

WILLIAM D. HOULETTE, Ph.D., is from St. Charles, Iowa, and writes as follows: "I have been interested in shooting and outdoor life since my early boyhood on an Iowa farm. While attending high school I ran a trap line mornings and evenings. Many Saturdays were spent tramping through the nearby fields and woods in search of rabbits. Most of this hunting was done with an old single-shot 12-gauge Western shotgun.

MORGAN G. HOLMES, a gunsmith of Montvale, New Jersey, sums up his shooting activities in the following words: "A natural love for shooting and the outdoors is primarily responsible for my articles. I had the pleasure and honor of shooting a great deal with Colonel Tewes. It was at that time I became interested in the technical end of the game. Fitting the gun to the man and the man to the job, however, hold a greater interest for me now than doing the shooting myself."

When **CAPT. E. T. L. LEWIS** speaks on the subject of big-game rifles, it is with the voice of authority. "My grandfather and father spent their lives in Africa and India," says Captain Lewis, "and were very keen big-game shots. I was taught to shoot at school and college, and on the moors in Scotland. Reside in British East Africa, and have been shooting African and Indian big game for the past twelve years. Also in the Southern Sudan, Northern Mexico, and Western America."

L. S. FOLTZ is head of the Department of Electrical Engineering at Michigan State College in Lansing, and is prominent in general engineering circles. "The article on evaluating shot patterns," writes Mr. Foltz, "was prompted by the very obvious lack of scientific treatment in the analysis of patterns. Results already obtained in tests of loading indicate that shotgun ammunition can still be much improved, and I hope to be able to report progress later."

INTRODUCTION TO RELOADING

(Continued from page 26)

the chamber of the rifle in which it will be used, as otherwise we could not easily feed it into the chamber, and close the bolt. Therefore the cartridge will tend to lie in the bottom of the larger chamber, and its bullet will not be exactly in line with the axis of the bore. As a consequence the bullet more or less "wobbles" into the rifling, and in doing so it may

slightly deform itself so that when it issues from the muzzle it does not fly as accurately as we would wish. It often flies mighty well, however, and don't get the idea that all ammunition in which these conditions prevail will prove inaccurate. But the ideal arrangement is to have the bullet so shaped and seated in its case, and the throat of the rifling so shaped and proportioned, that when the cartridge is in place in the chamber and the breech closed, the ogive or sides of the point of the bullet will rest against the lands of the rifling. The lands will then take hold of the bullet and straighten it up so that its axis conforms more nearly to the axis of the bore, and the bullet will not have to jump through a long and loose throat but will more nearly slide into the rifling, with much less deforming. This is the ideal condition, and when we can arrange for it it always gives better accuracy. But it is difficult if not impossible for the cartridge companies to provide such a perfect fit with their factory ammunition. First, because rifle chambers, even of the same make, vary; second, because it is impossible to make and load ammunition with machinery so that it also will not vary slightly in size; and finally, because the maximum-sized factory cartridges must always fit into all rifle chambers, including the smallest ones. Here, then, is one of the greatest advantages of hand loading; for you can select a bullet that is the correct size for your particular rifle, and you can load it in the case so that its ogive will touch the bullet seat—provided, of course, that the magazine of a repeating rifle is long enough to receive the assembled cartridge.

In regard to the procurement of bullets, you will find illustrated and listed in the *Ideal and Belding & Mull Handbooks* and the *Modern-Bond catalogue*, the lead and gas-check bullets for which moulds are available. Lead, tin, and antimony for casting can be bought from large hardware stores, or plumbers' supply houses. You do not have to mould the bullets yourself if you prefer not to. The companies who make the moulds will sell you any of their bullets ready moulded, lubricated, and sized to any reasonable size. The available jacketed bullets are listed in the catalogues of the ammunition companies—Winchester, Remington, U. S., Peters, and Western. The large Winchester catalogue and the Western ammunition handbook also illustrate many cartridges, and these illustrations are very helpful. When it comes to all details of the older ammunition of the black-powder period—cases, bullets, powder charges, dimensions, etc., I find the older Winchester catalogues—prior to 1908—to be extremely valuable, though they are very hard to get hold of now. The Western Tool and Copper Works, Box 856, Oak-

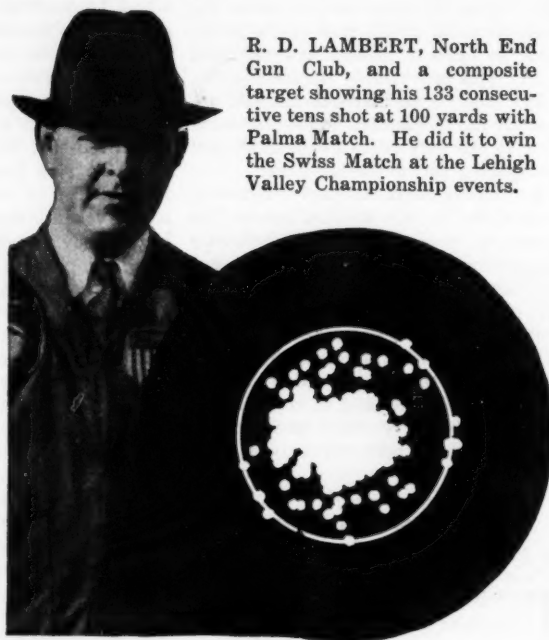
133 CONSECUTIVE 10's AT 100

R. D. LAMBERT DEMONSTRATES PALMA MATCH UNIFORMITY WITH OUTSTANDING PERFORMANCE AT NORTH END GUN CLUB, ALLENTOWN, PA.

When you start out to put twelve dozen or so bullets right down the groove into the ten ring—you need ammunition of Palma Match uniformity. That's what R. D. Lambert of Nazareth, Pa., figured when he set out to win the Swiss Match (100 yards) at the Lehigh Valley Championship Matches. He won with 133 consecutive tens—and that's shooting in any man's country.

Lambert also won the Gilles Trophy at the Metropolitan Outdoor Match, held at Ossining, N. Y., this year with a score of 400 x 400. You probably couldn't give him any other brand of ammunition than Palma Match. He writes "*it is the only ammunition I won anything with this year.*"

R. D. LAMBERT, North End Gun Club, and a composite target showing his 133 consecutive tens shot at 100 yards with Palma Match. He did it to win the Swiss Match at the Lehigh Valley Championship events.



... AND FRED O. EAKINS, JR., PRODUCES THIRTEEN DEWAR COURSE 400'S



EARLY in the summer of 1934 Fred O. Eakins, Jr., Columbus, Ohio, started making 400's over the Dewar Course with Palma Match. In the last year and a half he has duplicated his performance *thirteen* times. It's gotten to be sort of a habit with him—just like using Palma Match ammunition.

Consistent accuracy, uniformity, precision—whatever *you* call it—is an outstanding characteristic of Palma Match. That's why it's the first choice for outstanding scores . . . and the first choice of outstanding shooters. Remington Arms Co., Inc., Bridgeport, Conn.

FRED O. EAKINS, JR., Columbus, Ohio, has a habit of making 400x400 over the Dewar Course with Palma Match. Here he is with one of his first 400's.



LEMOPE, Los Angeles, scored 400 over the Dewar Course (scope).



Re

100 YDS WITH PALMA MATCH

PALMA MATCH MAKES

Clean Sweep

OF CALIFORNIA STATE GALLERY
CHAMPIONSHIP MATCHES



LES POPE, Los Angeles, scored 400x400 on the Dewar Cup (scope).

PALMA MATCH was again king of the firing lines at the California State Gallery Championships held at Oakland . . . to our knowledge, the first long range indoor matches ever held west of the Rockies. *Palma Match scored a clean sweep in every event!*

Steve Hampel, Oakland, brought home the California State Indoor Championship, closely followed by Les Pope, Los Angeles; Miss Shirley Turner, Oakland; and John B. Adams, San Francisco. All scored 613 (the aggregate of the Dewar and Turner matches), but Hampel took the trophy by right of Creedmore.

All shot Palma Match! A clean sweep if there ever was one!



STEVE HAMPEL, Oakland, carried off the California State Indoor Championship. Palma Match helped him make these typical targets.

SHIRLEY TURNER, Oakland, scored 216 to win the C. W. Turner Match (20 shots at 100 yards, X-ring scoring 11).



Remington
DU PONT

REG. U. S. PAT. OFF.

record of the things for which con-

"POSSIBLES AND IMPOSSIBLES"

by
FRANK KAHRS



If we could only shoot "for record" like we do in practice what a wonderful world it would be. My good friend Alfred Newhard, of Allentown, Pa., sends me a couple of 100-yard targets showing 40 tens and one nine (the thirty-first shot) that he shot at practice. But Al is more than a "basement wonder." He shot a 10-x possible in the recent Lehigh Valley Championship Match that's as sweet a target as I have seen in these parts.

...

A. J. Henrich of Long Island, Secretary of the Queens Village Trap and Rifle Club, claims to have discovered the medicine for winning rifle matches. He uses Kleenbore! And since he was the winner of the N. R. A. Life Members Match this year, and is one of the leading small-bore shots on Long Island, I'd say his findings are worth considering.

...

Harlan Shelley got his picture in the papers lately when he won the 1935 annual trophy of the Grass Lake Rifle Club, Jackson, Mich. They tell me he does it with Palma Match.

...

Speaking of tough championships to win, I'd rate the Metropolitan (N. Y.) Outdoor Championship among the stiffest. Those Eastern boys know their guns and shooting. It's nice to see George Wilkinson, a Palma Match shooter, take first prize. Score 399x400.

...

A re-check of the Camp Perry scores gives the 200-yard metallic sight re-entry match to Harold W. Follett of Ithaca, N. Y. He used VEEZ Palma Match and produced an aggregate score of 486.

...

Sgt. Leo E. Allstot of Mason City, Iowa, managed to nicely clean up the pistol end of the North Iowa Small-bore Rifle and Pistol Tournament. He won five out of the seven matches he entered—slow-fire 50 yds., .22; slow-fire 50 yds., .38; timed-fire 25 yds., .22; timed-fire 25 yds., .38; and the .22 Championship Match. That's what I'd call a good day's shooting, Sergeant.

many years was by for the longest

land, California, also make a fine line of open-point jacketed bullets in many popular calibers and weights. R. B. Sisk, Iowa Park, Texas, makes bullets for the .22 Hornet in several weights. A number of individuals advertise in **THE AMERICAN RIFLEMAN** that they will mould various bullets to order.

Powders: It is impossible to treat powders adequately in a series of articles like this. Powders are made in America by E. I. duPont de Nemours & Co., Wilmington, Delaware, and by the Hercules Powder Company, Wilmington, Delaware. Both companies publish and will send you gratis, booklets on their rifle, pistol, and shotgun powders, and also leaflets giving the proper charges of each of these powders for various cartridges and bullets. These should be studied, as well as everything about powders that is printed in the two handbooks.

There is no such thing as an all-purpose powder. Powders are designed to burn properly under certain rather limited conditions. For example, a powder which is designed to burn at high pressure, for use with jacketed bullets at high velocity in a high-power rifle, will not burn well or give good results when used for very light loads, in which the pressure is much lower. And conversely, a powder designed to burn at low pressures, for reduced loads, would give extremely dangerous pressures if used in large charges in an attempt to obtain high velocity. This is where most beginners get confused. They think that all they have to do is to get any kind of gunpowder, and then use this in any cartridge to obtain any results they wish, simply using more or less of it. This is decidedly not so. Study the handbooks and the powder companies' literature, including the tables of powder charges, before you select the powder to use in a certain cartridge case with a certain weight of bullet.

You will find that this literature apparently tells you that you can use two or more different powders to give just the results you wish, and while this is true, yet almost always there is one particular powder which gives best results with a given cartridge case and bullet. In the last two articles of this series I hope to give you inside information on the powders that are best to use under certain conditions.

Unless you know something about the procurement of powders you may have some difficulty in obtaining them. In the larger cities you can usually get powder from the sporting goods stores, by ordering it several days in advance. Usually there is one day each week on which the powder magazines will deliver powder to stores, and the store requires you to come on that day to get it, as they usually do not have a license to keep the powder in the store overnight. But in small towns

and out-of-the-way places you will find it much more difficult and rather expensive to get powder unless you know the ropes, because the law requires that powder be shipped only by freight, and the railroads charge double first-class rates on a minimum basis of 100 pounds, no matter what the actual weight of the shipment may be, making shipment from the powder mills extremely expensive. But the powder companies maintain magazines all over the country, and from the nearest one of these the freight to your home will usually be much less than from the mill. The powder companies will tell you the nearest magazine to your home.

CARTRIDGES FOR DOUBLE RIFLES

(Continued from page 22)

Six consecutive shots at 100 yards range resulted in a group of $1\frac{1}{4}'' \times 2\frac{1}{4}''$, fired right and left. An important supplementary diagram test consisted in firing all three loads at one target. Whatever the differences that should have been manifested, the fact remains that in practice compensation was at work and the composite group of four shots with each of the three loads measured $3\frac{1}{2}''$ wide by 4" deep.

A table of ballistics of various rimmed and rimless cartridges that can be made up for double and magazine rifles is given below. This list, however, can be supplemented by other calibers.

Cartridge	Bullet Weight Grains	Muzzle Velocity F.-S.	Muzzle Energy F.-F.
.22 Hi-Power	70	2800	1206
.25 Hi-Power	87	3000	1732
.240 Super Express H. & H.	100	3000	2000
.242 High Velocity Vickers	100	3000	2000
.246 High Velocity Purdey	100	2950	1934
.256 or 6.5-mm.	135	2000	2348
.26 Vickers	120	3000	2400
.270 Winchester	130	3160	2880
.275 or 7-mm.	175	2450	2530
.275 Rigby High Velocity	140	3000	2800
.275 #2 Magnum	140	2640	2164
.275 H. & H. Magnum	160	3000	2770
.280 Jeffery	140	3010	2814
.280 High Velocity	140	2850	2525
.30-'06 U. S.	180	2720	2956
.30-'06 U. S.	200	2350	2454
.30-'06 U. S.	220	2450	2935
.300 H. & H. Magnum	150	3100	3210
.300 H. & H. Magnum	220	2550	3180
.303 British	150	2700	2430
.303 British	174	2460	2340
.303 British	192	2200	2065
.303 British	215	2060	2028
.318 Westley Richards-Accelerated Express	180	2750	3020
.318 Westley Richards-Accelerated Express	250	2400	3194
.33	175	2900	3270
.333 Jeffery	250	2500	3470
.333 Jeffery	300	2200	3240
.350 Rigby Magnum	225	2600	3400
.350 Rigby High Velocity	225	2630	3452
.369 Purdey—D. B.	270	2625	4134

Cartridge	Bullet Weight Grains	Muzzle Velocity F.-S.	Muzzle Energy F.-F.
.375 H. & H. Magnum	300	2421	4000
.375 H. & H. Magnum	270	2700	4375
.375 H. & H. Magnum	235	2900	4330
.400 D. B. Light Purdey	230	2050	2150
.400 D. B. Heavy Purdey	400	2150	4100
.404	400	2200	4300
.416 Rigby	410	2371	5100
.426 Westley Richards Magnum Express	410	2350	5022
.465 H. & H. Express	480	2140	4880
.470 Kynoch	500	2125	5007
.476 Magnum Nitro Express	520	2100	5086
.500 Nitro Express	570	2125	5730
.577 Nitro Express High Velocity	750	2050	7020

This is not a complete list of all sporting cartridges, or of the different bullet-weights in use today in the various game-fields of the world; nor was it intended to be. It constitutes rather a cross-sectional presentation of various cartridges that are giving fine performances the world over, and may perhaps be of some interest to a certain school of American riflemen who are looking forward to a type of sporting rifle more adapted to other forms of hunting than stalking.

These modern cartridges, both for double and for magazine rifles, are not antiquated cordite loads, but are loaded with the latest type of smokeless powder, and bullets with non-fouling jackets; and if the American arms manufacturers continue to consider the double-barrel rifle impractical for factory production at a price that the sportsman of average means can afford to pay, then they are overlooking a very remunerative market, and the American shooting fraternity will pass up the pleasure of using a type of arm superbly adapted to certain classes of shooting.

THE .400 WHELEN

(Continued from page 20)

he asked if it were an elk, and I told him I was not sure, but thought it was a log. I asked him if he could hit that yellow patch, and he said "Sure, but why shoot unless it is an elk?" Just then the fog closed in again and blotted the elk from view for five or ten minutes; and we waited. By this time Dad had quieted down, so when the fog lifted I told him to hold one third of the way back from the right edge of the yellow patch, and see half of it over the top of the front sight. He did not want to shoot, so I told him it would be a good chance to try his rifle, so that he would know where to hold when he did see an elk. At the last minute he said that he would like to shoot the .400 Whelen instead of the .405, so I changed rifles with him. I told him to be sure and hold as I had explained, as I wished to test my sighting.

After a long and careful aim he fired, and a huge cow lurched out of her bed, and was instantly gone from sight. Father jumped to his feet at the same time, saying "Gosh! it was an elk, why didn't you tell me it was an elk; then I would have killed it? Do you think I hit her?" I asked him where the top of the front sight had rested, and he answered, "Right where you told me; only if you had told me it was an elk I would have gotten her." "Never mind," I answered; "let's have a good long smoke, and then we will go and dress your elk"; at which his countenance fairly beamed. I told him that if those sights had lain where I had told him to hold, there was no doubt of his having his elk. He was positive of his hold, and we found the elk some 50 or 60 yards from her bed, with a perfect lung shot. The bullet had gone clear through, tearing a 3-inch hole at exit, which was clogged with tallow. It was a nine-year-old dry cow. I think Father enjoyed this hunt more than any other of his life, and he certainly kidded Speare that night; but not for long, as Sol brought in a heart a few days later.

Of the nineteen animals shot with this rifle, I have had to trail a few deer some distance, but no elk more than 100 yards. Nothing has been wounded and lost with it, and I have missed but one animal, which turned and jumped just as I shot: a small bull elk. When I think of the times I have had to spend all day trailing bull elk wounded with the .30-'06-220, and the many I have found dead and soured that were shot by other hunters with too small a gun and in the wrong place, I am satisfied with my choice even though others may call it a cannon. I like to do all my hunting before I shoot, and the .400 Whelen, an old Sharps Creedmoor .45-120-550, and two Winchesters in .35 and .405 caliber, are the only rifles I have been able to do this with when hunting elk.

For me at least, the .400 has proven ideal for this type of elk-hunting; and I can think of but one other rifle that would be any better, and that is a double-barrel ejector rifle for a similar cartridge. This double rifle should be stocked like one's favorite shotgun, and should swing onto running game faster than most repeating rifles; and also the shotgun safety is faster. For brush hunting I believe we can learn much from the English. Winchester will now build a double .405 rifle, and it should prove a fine arm for our heavier game in the timber. I would like to see Winchester chamber it also for a .35-caliber cartridge with a 275-grain bullet at 2,300 feet velocity. This American double, together with the excellent .35 and .400 Whelen rifles, should satisfy any American hunter, and such rifles would be very useful for the greater portion of African game.

THE NATIONAL MATCHES

(Continued from page 28)

Perry may be somewhat fussed if he is delayed thirty minutes or an hour in drawing his rifle. He is likely to be slightly peeved if his cash prize check is not ready when he calls for it. He is quite apt to make some uncomplimentary remarks if there are no clean entry blanks on the counter when he comes in to enter a match. It is unfortunate, of course, that competitors are sometimes inconvenienced in such matters. On the other hand, if the shooter would give to a consideration of the tremendous detail involved and the tremendous pressure under which the match staff works, as much time as he does to consume a ham sandwich at the Post Exchange, some of his peeve would evaporate.

And these things which have been described in this article are only a part of the entire picture. The rest of it, the problem of man-power, of food for the masses, medicine for the sick, and sanitary arrangements, or finding men for the target pits and scoring benches, is equally involved and requires an equal amount of detailed planning. In our final article next month this phase of the job will be discussed.

EVALUATING SHOT PATTERNS

(Continued from page 29)

of the sector. Using a red or blue pencil, put down the number of hits in the inner circle, and in each ring.

Now evaluate the following:

Total hits = sum of sector hits or sum of ring hits;

Average hits per unit = total hits divided by 100;

% missed = number of units marked "0";

% hit = 100 minus % missed;

Sector coefficient = minimum shot in any sector divided by maximum shot in any sector (a measure of distribution);

Ring coefficient = minimum shot in any ring divided by maximum shot in any ring (another measure of distribution).

For perfect distribution these two coefficients would each be unity, but actually they may vary from .1 to .7 in the usual patterns. The "% hit" and these

THE .25-20 S. S. CARTRIDGE

(Continued from page 14)

Hercules Unique powder, and the No. 257420 Ideal gas-check bullet, seated with one lubricating groove and two bands out of the case. The bullet as made for me by H. Guy Loverin, of metal of my own special formula, weighs 75 grains; and I might say that this bullet if cast of 1 to 10 tin-lead alloy will not give as fine accuracy as when cast of the special alloy by Mr. Loverin.

The above load will give 50-yard accuracy that will equal that of the best .22 long rifle match rifles; and the load will not only kill gray squirrels easily, but will knock them right out of the tree. If the flat-nose No. 257420 bullet is found to be more powerful than necessary, the new 74-grain round-pointed No. 257616 Loverin gas-check bullet can be used.

About the only way a person can obtain a .25-20 S. S. rifle at the present time is to pick one up second-hand. If the barrel is not in perfect condition this should be no cause for discarding the rifle entirely, for it is surprising how some rifles with barrels in too poor condition to handle cast bullets, will give remarkable accuracy with metal-cased bullets.

two coefficients tell a much more complete story than the mere "per cent of charge" in the 30-inch circle.

To illustrate these factors I have assembled the results of the analysis of ten targets made by my two 12-gauge pump guns, which I have designated as "D" and "E." Each gun was shot once with each kind of load, and five different kinds of loads were used. It will be observed in the table that three of the patterns showed a high percentage of the total charge in a 30-inch circle (79, 72.4 and 76 per cent), but that only the last one showed reasonably high coefficients of distribution, and good per cent hit. Several of these patterns appeared to be pretty good at first sight, but the analysis revealed serious defects; and anyone trying this method on what he thinks is a good pattern may get quite a surprise.

Load		Gun.	Total hits 30" cir.	Hits per unit area.	% missed.	% hit.	Sector coefficient.	Ring coefficient.	Pellets in charge.	% in 30" circle 40 yds.	Wt. of shot, oz.
26 grs. 1 1/4" 4 ch. Repeater	D	117	1.17	39	61	.217	.077	148	79	1 1/4*	
" " " "	E	87	.87	47	53	.48	.62	148	58.8	1 1/4*	
4 ch. Super-X	D	85	.85	49	51	.333	.095	181	47	1 1/4	
" " " "	E	131	1.31	32	68	.263	.143	181	72.4	1 1/4	
5 ch. " "	D	61	.61	53	47	.083	.273	224	27.2	1 1/4	
6 ch. " "	D	200	2.00	15	85	.33	.40	301	66.7	1 1/4 (est.)	
" " " "	E	54	.54	57	43	.222	.222	224	24.1	1 1/4	
" " " "	E	134	1.34	26	74	.40	.292	301	44.5	1 1/4	34 grs. powder
7 1/2 ch. X-Per	D	292	2.92	11	89	.658	.233	431	68	1 1/4	
" " " "	E	328	3.28	6	94	.656	.575	431	76	1 1/4	

*Infallible

History of the Standard American Pistol Target

THE birth of the Standard American Target is recorded in "Modern American Rifles," by A. C. Gould, published in 1892, a rare volume that has long since become a "collector's item." The target was designed by Maj. Charles W. Hinman and has the following dimensions: Ten ring, 3.36"; Nine ring, 5.54"; (Bull for 25-yard firing); Eight ring, 8.00"; (Bull for 50-yard firing); Seven ring, 11.00"; Six ring, 14.80"; Five ring, 19.68"; Four ring, 26.00".

It was adopted by a majority vote of the representative rifle clubs for 200-yard rifle firing in January, 1886, through a mail ballot conducted by THE RIFLEMAN, then known as *The Rifle*. In Gould's companion volume, "Modern American Pistols and Revolvers," revised edition of 1894, we read the genesis of pistol shooting in this country. The first match was held at the old Creedmore range in the summer of 1886, the course being five shots slow fire at twenty-five yards on the Standard American Target, unlimited re-entry, three highest scores to count for record. Our first revolver champion was C. E. Gillette, who won with 143 x 150, his best single target totaling 48 points. In that entire match there were only five targets in which all five shots were inside the nine-ring. A month later Chevalier Ira Paine made the first five-shot "possible" score at twenty-five yards on the old Walnut Hill Range near Boston, the oldest rifle and pistol club in this country, that is still going strong. In a surprisingly short time ten-shot possibles became so frequent that the range was increased to fifty yards; the slow fire stage of the National Match Course used in this match. It was the custom in those days, and for a long time thereafter, to fire

hundred-shot slow fire matches, time allowance two hours. A year or so later two brothers, W. W. and F. E. Bennett, made the remarkable hundred-shot slow fire scores of 914 and 915 x 1000 points. And on July 7, 1888, Sgt. W. C. Johnston of the Massachusetts National Guard, made the first ten-shot possible at fifty yards; ten consecutive shots in or touching the .336-inch ten ring. He ran six more "tens" on his next string, slipping out into the "nine ring" on his seventeenth shot. This straight run of sixteen consecutive tens still stands as the world's record after a lapse of forty-seven years.

Those fine old records were all made with .44-caliber Russian Model Smith & Wesson revolvers firing black powder factory ammunition; proving that insofar as accuracy was concerned, those beautiful guns, that were discontinued in 1906, were in no way inferior to the arms we use today.

On September 13, 1888 (the year of the blizzard), A. C. Gould, editor of *The Rifle*, made some careful tests with a single-shot Stevens target pistol, using a machine rest and .22-caliber black powder long-rifle ammunition. He soon found it was quite possible to place all ten shots comfortably inside the ten ring of the Standard American Target at fifty yards. Similar targets made under the same conditions with the current .22's are on display in the shooting box on the Madison range, proving that there is nothing new or original about small-bore pistol shooting under those conditions, and that a "possible" is entirely possible.

The Standard American Target as originally designed is used today both by the N. R. A. and U. S. R. A. in outdoor pistol and revolver matches.—ROY S. TINNEY.

Something for Experts

REALIZING that those who qualify as experts in the National Rifle Association qualification courses do not receive any official recognition of their achievement other than the bronze decoration which may be displayed, showing the score attained, the following announcement has been made by the Competitions Division.

"Commencing January 1st, 1936, all shooters, firing senior qualifications and making the grade of expert, will receive an appropriately inscribed identification

card on which will be recorded the name of the individual and the score.

This card, which will be approximately the size of the annual membership card, will also show the date qualification was made and the type of arm used. These cards will be mailed together with the usual bronze expert decorations.

Owing to the enormous amount of clerical work involved it will be impossible to furnish these cards for qualifications made prior to January 1st, 1936."

OREGON LEAGUE GOING STRONG

WE HAVE been reading with interest the activities of Rifle Clubs in all parts of the United States. As shooters have the same interests the world over, we believe they would like to hear what is going on in the vicinity of Portland, Oregon, in the shooting game.

Since the weather has driven the shooters indoors, the gallery season has started. All practice and no competition is no fun, so here is what we did about it.

Representatives from the interested clubs met in Portland, Oregon, and formed what is known as the Columbia-Willamette Rifle League. The League had a very successful season last winter and began its second season November 12th with thirteen teams entered.

At the annual meeting of representatives held September 25th, Bruce Roberts, of Vancouver, Wash., was again elected Secretary of the League. His advisory board includes Lee Swem of the Portland Club, Dr. John D. Sheehan of the Sellwood Club, and H. J. Erickson of the Rose City Post American Legion Club.

The teams are all within a radius of thirty miles and firing is shoulder to shoulder according to a schedule which this year will cover a period of twenty weeks.

The teams are divided into Class A and Class B. Medals go to the winning team of each class and to the high individual and high tyro of each club. An entry fee of five dollars per team is charged to pay for the medals.

At the end of the tournament a match is held between the high individuals for an individual championship medal. At the same time a match is held between the high tyro of each club for a tyro championship medal.

The clubs entered are: Portland Rifle Club (two teams), Vancouver, Wash., Rifle Club, Seventh Infantry, Vancouver Barracks; Gresham, Ore., Rifle Club, Forest Grove, Ore., Rifle Club, Mt. Hood, Ore., Rifle Club, Rose City Post American Legion Rifle Club, Oregon Gun Club, Sandy, Ore., Sportsmen's Association, Sellwood Rifle Club, Corbett Gun Club, Company B, Oregon National Guard.

All matches are conducted according to N. R. A. rules, with a few rules to govern local conditions. The medals are presented at a banquet given at the end of the tournament.

Last year's banquet, which was put on by the Vancouver Club, assisted by the Vancouver Ladies' Rifle Club, was attended by ninety shooters and their wives.

With the practice gained in these matches the shooters begin the outdoor season as tough competitors in any match.—BRUCE ROBERTS.

Fourth Annual Minnesota State Matches

BACK in 1812 the Army established historic Fort Snelling, Minnesota, in order to protect the trappers and traders from the roving Sioux and Chippewas. On September 26 last, more history was made at the old fort, when pistol shooters of this section of the country went to war to decide the handgun championship of the state.

Col. H. I. Church, an old-time shooter and grand old man of the rifle range, was executive officer of the matches, assisted by C. V. Schmitt, a nationally known rifleman and gunsmith, and Sgt. P. E. Lowery, whose ability as range officer in the state matches has been outstanding. These men had wonderful cooperation from the other officers of the association and from the volunteers, who worked very hard keeping the 36 match and 24 practice targets going for 136 competitors who fired in the various matches. F. M. Hakenjos of the N. R. A. staff, who was home on a vacation, was a familiar figure on the range, taking pictures of the champions and tyros at work.

The Pistol Team Match and Individual Re-entry occupied the program for Saturday, September 28th. The Minneapolis Pistol Club Team, composed of Dr. A. C. Skjold, George Paine, Glen Northfield, and Dr. E. O. Swanson, won the team event on a score of 920, while Paine took the re-entry gold medal.

Just as the entries closed for the Individual pistol match Sunday morning, Walter Walsh sauntered up to the registration tent and made his entries in all of the matches. He had just arrived after riding 300 miles in a coach and 12 miles in a taxi but still was able to shake out a 239 to tie and outrank G. Northfield, who had also recently returned from a hard trip to the Dakotas, where he had been testifying as a ballistic expert. Dr. Skjold was third with 235, Capt. Austin Corpe had 234, George Paine 234, Dr. Swanson 234 and L. E. Paegel had 231 to get in the bronze class. Forty-nine others fired but received no medals.

Seven teams, including the Highway Patrol, the First National Bank Guards of Minneapolis, the Hibbing Police, Swift and Co. Guards, Federal Reserve Guards of Minneapolis, the U. S. Border Patrol, and the Minneapolis Post Office Guards fought it out for the Police Team Championship title, placing in the above order. Chief John P. Arnoldy of the State Highway Patrol watched his team, composed of L. O. Thrum, R. H. Pursely, S. J.

Porter, and G. E. Hall, take the trophy and medals with a score of 1040. Mr. Arnoldy is an ardent booster of the team; under him they have won two state team championships and Laurence Thrum has won the individual police championship two successive years. The course was ten shots each—slow, timed and rapid fire on the 25-yard rapid fire target at 25 yds. This was the course of fire in all matches except the target pistol matches, in which events the 20 rapid fire target was used at 25 yards for slow fire only.

Colonel Church mustered together a Reserve Team that was hot that day. Lt. D. K. Stern, Lt. W. B. Long, Lt. W. Walsh, and Lt. A. C. Skjold shot a score of 1009 with the .45 automatics to win the Military Team event.

With a score of 285, the highest fired in the two days shooting, Walsh took the Police Individual Trophy Match, in which there were twenty-five entries. In the match that followed Dr. Skjold won high honors out of forty-four competitors with a 265. Walter Walsh was not satisfied with his score in the 45 pistol matches so he knocked out a 265 in the Military Individual to take that match too.

Competition for the State Individual Revolver Championship was very keen, for there were about seven men who shot about the same average scores over the course during the summer. E. T. O'Dell placed first, winning the title and trophy with a 275.

The sun was getting low when the teams lined up for the Revolver Team Championship Match. The Minneapolis Club, with Skjold, Northfield, Paine, and Oien in the lineup, crashed through with a score of 1068, averaging 267 per man to take home the trophy for the second time.

This series of matches was undoubtedly the most successful pistol shoot ever held by the state association and the officers feel that the hours spent in making the arrangements were well worth while. The good sportsmanship of the shooters was an outstanding quality of the matches, and everybody left in high spirits. The increased entries over last year and the keen interest shown by the competitors established the feeling that the annual pistol shoot will continue to be an outstanding event in this section. The association extends a cordial invitation to all shooters to attend the matches next year.—DR. E. O. SWANSON.

GONE—THIRTY GOBBLERS

THE annual Turkey Shoot sponsored by the Alamogordo Rifle and Pistol Club was held on the Alamogordo (N. Mex.) Range on Sunday, Nov. 24.



GOBBLERS A-PLenty AT THIS TURKEY SHOOT. PHOTO SHOWS LT. WILLIAMS, 7TH CAVALRY, AND CAPTAIN AND MRS. CHARLES ASKINS, JR., BRINGING HOME THEIR TURKEYS

Rain the day before cut down the attendance considerably, but brought ideal weather for the shoot.

The visiting shooters made up a field of very high caliber, which included Charles Askins, Jr., Louis D. Kenesek, R. P. Jackson, and Mr. Tinney of the U. S. Border Patrol; Miss Helen Orme-Johnson, Harry Orme-Johnson, "Bob" Lockett, Lt. Williams of the El Paso Police Rifle Club; Charles G. Fuller and B. G. Robinson of the Roswell Rifle Club; and Mrs. Charles Askins, Jr., all who attended the National Matches at Camp Perry this year; also Harry Lennon of the U. S. Border Patrol, Mr. Phillips and Mr. Dan Vaughn of Las Cruces, and Clarence Insull of El Paso.

Edwin Frazier, who has previously attended the local shoot, journeyed all the way from Honduras and eventually got his turkey late in the day. Charles Askins, Jr., took the largest turkey of the day by shooting a perfect score in the three-way match with .30-'06, .22 rifles and any pistol.

Charles G. Fuller of Roswell was not sure which he prized most; the gold medal for fourth place in the National Individual Rifle Match at Camp Perry or the four milk-fed turkeys he took home.

Competition was so keen all through the day that shooters had no time to think up alibis. On one pistol card all twelve entries had attended Camp Perry this year and on another card seven of twelve entries shot a ten with a single try at 25 yards.

The percentage target, standard "A" target, which consisted of ten shots in the black, offhand, scared most of the shooters off, but proved easy for Charles Askins, Jr., Charles G. Fuller, and Tony Trujillo, who won four turkeys out of eight tries. A total of thirty gobblers was awarded during the day.

How Fort Worth Did It

OUR club was organized three years ago with a membership of about sixty, including the big bore shooters. After incorporating the club and obtaining our N. R. A. charter, the usual difficulty of finding a suitable place to shoot was a serious problem for us to solve without spending a lot of money. Unfortunately for our purpose, the terrain for miles around is first as a pancake and after much planning we decided that we would have to build a backstop if we got one. Our Club President, C. C. Parfet, started the ball rolling by renting us about four acres of land for one dollar per year. Thereafter we made a search of all junk yards, tank factories and machine shops looking for steel plates.

Finally we came across a fellow whose shooting interest had been dormant for many years but when we explained our mission he was all ears and was anxious to help us out (wherefore we obligingly spent the next hour hearing about his remodeled Krag). It happened that he had just what we were looking for and his attitude toward we shooting brothers was very helpful.

Anyhow, we got the seven pieces of steel, about five by ten feet each in length for our backstop. Fortunately one of our members owned a three ton truck with winch and this was just what we needed to haul the steel out to the range. Another member owned a welding outfit and this solved our major problems in full. We promptly issued a citation for each member to be present on a certain Sunday and all the necessary labor was furnished. Razzberries were liberally passed out to those detailed to do the carpenter work and painting. Having plenty of old two inch pipe on hand (which also was donated by a member) we made a frame for the backstop, resting the bottom edge of the steel about one foot from the ground and slanting it forward to a height of about six feet. We recommend twice the height but this was the best we could do. Dirt was piled some two feet high behind the steel to catch any low shots. After lapping one sheet of steel over the end of another and welding same to the pipe frame, we had completed a fine backstop some seventy feet in length, and about one quarter inch in thickness.

We use this for small-bore only. The degree of slant causes the lead bullets to splatter into the ground, with little or no wear on the steel after many thousands of rounds. We tried out the

Hornet at one hundred yards and none of the ten shots penetrated the metal, due to the slant, but the dents made looked very discouraging so we decided to limit the use to long rifle only. This length backstop affords adequate space for twelve shooters and the arrangement of our target frames is very satisfactory. Fifty yards from the common firing point we have twelve pieces of two-inch pipe driven in the ground, and into these we place small movable posts about three feet long tapered at the bottom to fit the pipe, with brackets at the top to hold the frames. There are two posts to the frame and each of the six frames takes care of two shooters with plenty of room for three record targets and one sighter for each position. The frames are made of one- by two-inch soft pine

PISTOL BULLETINS NOW READY

THE pamphlet, containing scores made in N. R. A. individual pistol and revolver matches at Camp Perry, is now ready for distribution.

This book of pistol scores has been mailed to all who competed in the N. R. A. program of pistol matches at Camp Perry. Others may receive a copy by sending ten cents (\$.10) in postage to cover cost of mailing and handling. Address requests to N. R. A. Competitions Division, 816 Barr Building, Washington, D. C.

and the targets are placed on these with large head thumb tacks. Although we usually have plenty of wind we have had little trouble, if any, with our targets blowing down. We use a little wider frame for the 50-yard two-bull targets to prevent shadow from the frame. On the 50-meter and 100-yard lines we have the the same arrangement of pipes in the ground and the posts and frames are easily moved from one line to another. We found it very helpful to paint the frames white. The backstop is about twelve feet behind the 100-yard line, and between the two during a match we place a strip of cheap white cloth about two feet wide, from one end to the other on small wooden posts, and this makes a splendid arrangement for spotting holes and we can heartily recommend the system to any club which has not tried it. We have noticed some clubs using individual frames, placing the targets one above the other. However, after trying

several arrangements we believe our present system is more practical and beneficial. The serious target shooter well knows what usually happens when he sights in on the top target and then drops to the lower one, especially if a heavy mirage is boiling. The horizontal shift from sighter to record target seems to eliminate a lot of this change in point of impact. We have copied from others and pass the information along; it is worth trying. Another very important matter overlooked by many clubs: each position should be numbered "at the target," either by using galvanized tin plates on top of the frames or stakes driven in the ground. The lack of such numbering nearly always results in much confusion and loss of time (with a few alibis thrown in for good measure).

We have made an effort not to organize an exclusive and expensive club, but to create a convenient, comfortable and safe place to shoot, and to welcome everyone interested in either rifle or pistol to join at a price low enough to barely cover the small operating expense. We have members from all trades and professions and anyone who can afford ammunition can afford a membership. However, it is mandatory that everyone obey the club rules and we do not allow any monkey business either in a match or practice. Two cardinal sins are not tolerated: bolts and cylinders must be open when not in actual use, and one must not point a gun at another. I personally hope some of the larger clubs will adjust themselves along this line; no one enjoys a match when he is constantly looking down the bore.

Far be it from me to slight our pistol shooters (especially since our club president is one of them). We have a fine pistol range adjoining the rifle range; the backstop is of heavy steel and suitable for any caliber pistol—but not rifle. There are ten positions at 25 and 50 yards. Incidentally I might mention that we procured that steel in the same manner as we managed for the rifle backstop. Both ranges are ideal, except that we plan to build shade covers over all firing positions by next summer, and also we have visions of a club house if we get a few more donations.

A few years back a similar club was organized here, mostly for the big-bore and shotgun enthusiasts, and after spending some fifteen hundred dollars for improvements the program was a complete failure; therefore to build up a real successful gun club we feel that a lot of interest and a little money will go much farther than a lot of money with little interest.—MARVIN HUDSON.

Manhattan Provides an Example

LUCIAN CARY

NEW YORK city now has a well equipped and properly manned rifle and pistol range open to the public from 9:30 in the morning until 6:30 in the evening every week day, and available to clubs or groups by arrangement at other hours and on Sundays.

The Manhattan Rifle and Revolver Association, the oldest club devoted to target shooting in New York City, owns the range and is operating it at 24 Murray Street under the name of the Manhattan School of Firearms. The Manhattan reserves the range exclusively for its own members and their guests every Wednesday night.

The range has a roomy lounge and nine firing booths, each with an electric target carrier. A target may be run out to any point up to seventy-five feet and brought back by operating a two-way switch in the booth. Semi-automatic stops are fitted for twelve and a half yards, the usual distance for instruction, twenty yards, for target shooting with pistol or revolver, and twenty-five yards for rifle shooting.

Morris Doob is the manager in charge of the range and he has W. T. Castles as an assistant. Doob served as coach of his ship's rifle and pistol teams while in the navy, has shot for years in N. R. A. and U. S. R. A. pistol matches, and has had the experience of a year and a half in running Maj. Anthony Fiala's School of Firearms. Castles was for more than a year a coach with the old New York School of Firearms, and is familiar with the problem of teaching armed guards how to put more than one bullet out of five in the paper at thirty or forty feet.

Doob has a shop adjoining the range with a work bench and an unusually complete set of tools and moulds for precision hand-loading. He has been experimenting for a couple of years to find revolver loads that will give fine accuracy with least recoil as well as loads that will give maximum stopping power. Doob regularly tests his loads in a machine rest designed by Harry Pope and is prepared to test loads and revolvers or pistols for customers of the range.

The Manhattan hopes to accomplish several purposes by operating a range open to the public. Its first purpose was to secure better quarters for its own members than it could otherwise afford. The Manhattan was organized forty years ago. It was originally more interested in rifle shooting than in pistol shooting. Dr. R. H. Sayre was president of the club from the beginning until his death six years ago and among the older members were Dr. W. G. Hudson, H. M. Pope,

B. F. Wilder, Tom Anderson, John Dietz, and Joseph Silliman. But as New York City grew the club lost its two-hundred-yard rifle range and gradually gave up rifle shooting in favor of pistol and revolver shooting. For some years the club rented space in an armory and pinned up its targets on a burlap curtain at 20 yards.

PERRY FILMS AVAILABLE

16-mm. movies of the Camp Perry 1935 matches are now ready for loan to N. R. A. clubs. Write National Headquarters for details.

The club's second purpose was to help provide adequate indoor shooting facilities for New York city in the belief that nothing the club could do would contribute more to the increase of good shooting. The range is not a profit making enterprise. The Manhattan is not going into the sporting goods business. It is offering service at the lowest possible price.

The present prospect is that the club will have a modern range for the use of its members at no greater cost than its former rent. The prospect suggests that there is nothing in the nature of things to prevent other clubs from setting up similar ranges in other large cities. New York has the advantage of a larger population to draw on than any other large city. But the proportion of New York's population that is, or can be, interested in rifle and

pistol shooting is smaller than in many other places. Rents in New York are notably high. It seems likely that there are not enough men interested in target shooting to support such a range. But there is another source of income. Banks and trucking companies who employ armed guards are coming to appreciate the wisdom of giving their men instruction in the use of the guns with which they are armed and occasional practice.

Time was when bank officials assumed that a man with a pistol permit, an indifferent revolver, and six ancient cartridges was an armed guard. The New York pistol shot, smarting under the restrictions of the Sullivan law, felt that the police were rubbing it in when they handed out a permit to any man a bank sponsored and refused a permit to the reputable citizen who wanted to learn how to shoot or to keep in practice the skill he already had. The situation is still an ironical one. There are still plenty of armed guards who have never fired a revolver in their lives and who would be more likely in an emergency to shoot an innocent bystander than to stop a bandit. There are still honest men who can't get pistol permits. But it isn't as bad as it was.

The Manhattan has still a third purpose and that is to hold annually a series of pistol and revolver matches for the indoor championship of the metropolitan district. The present plan is to hold this series of matches on the two last Sundays in March of this year.

This pioneer effort to provide shooting facilities of the right type for the citizens of a community is an example of what can be accomplished in cities and towns throughout the country.



MANHATTAN RIFLE AND REVOLVER ASSOCIATION SCHOOL OF FIREARMS, 24 MURRAY STREET, NEW YORK CITY. CLUB MEMBERS SEATED AT TABLE, LEFT TO RIGHT, ARE KARL T. FREDERICK, PRESIDENT, H. M. POPE AND JOSEPH E. SILLIMAN

COMING—BELLE CITY CLUB ANNUAL BANQUET

THE Belle City Rifle Club of Racine, Wisconsin, is very pleased to announce that arrangements have been completed for their annual banquet to be held at Hotel Racine, Friday evening, January 17th, 1936. Beginning several years ago as an annual get together and "feed" this banquet has steadily grown in popularity and value to those interested in things pertaining to rifles, target shooting, and hunting, until it is perhaps the largest banquet of its kind sponsored by a rifle club in the United States.

Last year our very good neighbor Dr. Paul B. Jenkins, Advisor on Arms for the Rudolph J. Nunnemacher Collection of Projectile Arms of the Milwaukee Public Museum, was the speaker of the evening. Over two hundred guests were present, and when interviewed by active members of Belle City Rifle Club, who are constantly on the alert in an effort to make these banquets even better than previous ones, all were unanimous in their acclaim of Dr. Jenkins and his address of the evening.

Frankly the writer believes that Dr. Jenkins thoroughly enjoyed speaking to so interested an audience last year. This year we approached Dr. Jenkins for a "repeat performance," knowing that Dr. Jenkins would be able to speak to us again on subjects pertaining to rifle shooting and its history which would again keep our audience on the edge of it's chair as he did last year.

Dr. Jenkins' subject will be "The History of Accurate Shooting." The idea of this address is actually contained in the title. Very few men of today know anything of the progress in the accurate placing of the pellet—i.e., the reducing in size of the ten ring, the constant increase in ranges at which such ten rings can be hit, the improvement in arms and sights, that in the last century have progressed from where to hit a 3-foot ten ring at 100 yards was proclaimed "good shooting" 100 years ago; down to today's actual attainment of $\frac{7}{8}$ of an inch for 5-shot groups at 220 yards!

Dr. Jenkins will cover the historical and practical development of such accuracies in the small-bore ball gun, the rifle, pistol, and in the shot gun and its special scope and purposes.

Dr. Jenkins will bring with him historical guns as illustrations, some of which few of us have ever seen. He is also planning on the use of graphs to be used in illustration of some of the points he shall discuss. And then too we know that Dr. Jenkins shall mention many of his own personal experiences which are always so interesting and human in their content and told only in his inimitable manner.

We shall endeavor to present several of the newer ultra accurate firearms of today for the inspection of the guests. Perhaps the new Remington 37—if my friend Frank Kahrs will trust his "baby" away from home among the Wisconsin riflemen—the Winchester 54 in the Sniper and other grades as well as Remington's excellent 308. Movies will be shown if time allows. Camp Ritchie and Perry films. Game and hunting films from *Field and Stream* will also be available.

There will be a full evening filled to the brim with human progress showing the problems, difficulties and efforts made to overcome the many obstacles in the path of man's shooting tighter groups. These experiences truly can be called the father of today's X-Ring groups as being fired in practically every match today.

The members of Belle City Rifle Club invite all interested shooters to our banquet. Last year several Illinois shooters came down from Chicago. This year we repeat our invitation to the Illinois shooters and are certain that we shall give them a more interesting evening than the one they spent with us last year.

For further information or reservations, write Voyle Ott, Secretary, Belle City Rifle Club, Racine, Wis. — WES HANSCHKE.

WISCONSIN ASSOCIATION PLANS BUSY SHOOTING YEAR

THE Wisconsin Rifle Association finished its most successful year with its annual meeting at Kohler, Wisconsin, when officers for 1936 were elected and plans for activities of 1936 were formulated.

The following officers were chosen: President, Col. Jos. J. Ring, 1842 North 83rd St., Wauwatosa, Wis.; Vice President, Mr. Herbert Kohler, Kohler, Wis.; Secretary-Treasurer, Mr. H. Giese, Racine, Wis.; Executive Officer, Mr. Daffinrude, Viroqua, Wis.; Directors: A. M. Vinje, Madison; Bert Vandersteen, Kohler; L. D. Schiff, Milwaukee; W. Turner, Burlington; Roy Emerson, Superior, Wis.

For the encouragement of winter shooting, some postal matches will be held and the formation of district leagues promoted by offering a W. R. A. Trophy for each circuit of six or more teams representing clubs which are members of the W. R. A. State Gallery Matches will be held in Madison during the last of March.

Clubs in different parts of the state will be encouraged to put on district matches by arranging dates so as not to conflict and making up a schedule of these matches and sending it to all clubs just as soon as sufficient information is secured by the secretary. All those arranging matches are urged to communicate with

the secretary as soon as possible. The following matches are scheduled:

W. R. A. Postal Gallery matches finished by March 15; W. R. A. State Gallery Match, Madison, March; Milwaukee District High Power matches, June 14; Milwaukee District Small-Bore matches, June 28; State Small-Bore matches, Kohler, Wis., July 11 and 12; State High Power matches, Racine County Line Range, August 8 and 9; the Civilian Team for Camp Perry will be chosen at these matches. Southeastern League Small-Bore matches, Racine, September 27.

ANNUAL DIRECTORS' MEETING AND MEMBERS' BANQUET

All N. R. A. Members Invited

THE ANNUAL MEETING of the Directors of the National Rifle Association will be held as required by the Association's by-laws on the first Friday in February, February 7th, 1936, at the Hotel Mayflower, Washington, D. C.

The meeting will be for the purpose of electing officers and members of the Executive Committee for the ensuing year and to transact such other business as may properly come before the Board. Voting will, of course, be limited to members of the Board of Directors, but the meeting will be open to all members and friends of the Association. Discussion will be permitted from the floor on any subject which may properly be considered by the Board.

The Annual Banquet for members of the Board, Association members and the general public will also be held at the Hotel Mayflower on February 7th. The time will be 7:30 P. M. United States Senator Royal S. Copeland and The Honorable Harry H. Woodring, Assistant Secretary of War, will be among the guests and speakers. Other members of Congress and officials of the War and Navy Departments are also expected to attend.

Some very unusual and spectacular African hunting pictures will, it is hoped, also be available for showing.

The Annual Meeting of the National Rifle Association this year will follow immediately on the American Game Conference, which will be held in Washington at the Hotel Mayflower Monday to Thursday of the same week. This occasion therefore affords an unusual opportunity for all sportsmen who are interested in the subjects of conservation, target shooting and national defense to spend a most interesting week in the capital city.

The Association's collection of American arms will be available for public display for the first time.

The Mayflower Hotel will extend special rates to members of the Association during the entire week.

IMPROVED RANGES—MORE CASH FOR MID-WINTER SHOOT

A MID-WINTER small-bore tournament modeled after the big .22 rifle shoot annually held at Camp Perry and followed by a pistol meet that promises to attract hundreds of hand-gun shooters is being planned for shooters of America by the N. R. A. and Florida State Rifle Association.

This dual mid-winter outdoor tournament, first ever attempted on a nationwide basis, will be held in the so-called Floridian twin cities of St. Petersburg and Tampa, over the seven-day period March 5th to 11th inclusive. The small-bore tournament will open in St. Petersburg Thursday, March 5th, continuing through Sunday, March 8th. Pistol matches will get under way in Tampa on Monday, March 9th; the handgun meet will be concluded Wednesday, March 11th.

Reports from key men in charge of arrangements for the big tournaments indicate preparations already are under way looking both to improvement of the ranges and providing generous appropriations for added cash prizes. T. F. Bridgland, President of the Florida State Rifle Association, in charge of small-bore arrangements, writes from St. Petersburg that the range there is being enlarged to accommodate seventy-five men at one time.

The pistol program is in charge of Frank Wyman and "Smitty" Brown. We also learn that a well rounded pistol schedule has been whipped into shape by this genial pair of pistoleers. Several new events have been added to the pistol schedule as has the lump sum of \$350.00 for cash prizes. This amount will be paid in prizes in addition to the regular 50% of entry fees cash pool.

Everything is being done to make this first dual mid-winter tournament a real success. Many friends of the shooting game as well as N. R. A. and the Florida Association are contributing generously both time and money in preparing a tournament as unusual as the balmy climate of Florida in mid-winter. Every rifleman and hand-gun shooter who can possibly arrange a trip to Florida this winter will do well to attend this feature tournament of the season.

Tentative schedule of pistol matches to be fired at Tampa, March 9-11, follows. (Schedule of small-bore rifle matches at St. Petersburg March 5-8 was published last month.)

The pistol schedule:

Match No. 1. Ind. .22 cal. slow fire match. 20 shots at 50 yds.

Match No. 2. Ind. .38 or larger slow fire match. 20 shots at 50 yds.

Match No. 3. Ind. .38 or larger time fire match. 20 shots at 25 yds.

Match No. 4. Ind. .45 cal. match. Probably National Match Course.

Match No. 5. Open two man team match. Nat. Match Course with .38's or larger.

Match No. 6. Ind. Police Championship Match. Nat. Match Course with .38's or larger.

Match No. 7. Ind. Rapid fire match. 20 shots at 25 yds. with .38's or larger.

Match No. 8. Ind. Open National Match Course Match with .38's or larger.

Match No. 9. 4 man Police Team Match. 25 yard Camp Perry Police Course of fire.

Match No. 10. .22 cal. Championship. Nat. Match Course with any .22 cal. pistol or revolver.

Match No. 11. 4 man Open Team Match. Nat. Match Course of fire with .38's or larger.

Match No. 12. Open Mid-Winter Grand Aggregate. Probably total scores made in Matches fired over National Match Course.

N. E. RIFLE ASSOCIATION

THE first meeting of the New England Rifle Association was held at the Statler Hotel on November 17. This meeting was called together by Hugh Richardson, president of the Connecticut Rifle Association. The purpose of the meeting was to fix dates for registered New England State Rifle Tournaments. In the past these dates have been haphazardly fixed and have often conflicted. The meeting was opened by Hugh Richardson and turned over to Mr. C. B. Lister, Secretary of the N. R. A. The dates set are as follows:

May 23-24, Rhode Island at Rumford; June 5-6-7, Connecticut at East Haven; June 20-21, Maine at Auburn; July 1-5, Maryland at Camp Ritchie; July 11-12, New Hampshire at Manchester; July 25-26, Massachusetts at Walnut Hill; August 1-8, United Services of New England at Wakefield, Mass. (tentative); August 15 to September 5, Camp Perry, Ohio (tentative); Sept. 19-20, Main Pistol and Revolver Tournament at Auburn.

All the above shoots are registered with the N. R. A., and will be attended by N. R. A. officials. Scores made in the above matches will be officially recorded. Most of the above dates for New England Tournaments are set two weeks apart, which will enable the shooters to visit other state shoots.

NEW CONDITIONS FOR GALLERY TEAM MATCHES

ALL teams entering the National Rifle Association Gallery Interclub Matches this season will have a chance to win medals in their own groups as well as an opportunity to compete in the National Finals.

This year clubs competing in the Interclub Matches will be grouped according to average scores based on the first three weeks of shooting. No more than ten points in the rifle section and fifteen points in the pistol section will separate the high and low teams in each group.

The first match is scheduled for the week ending February 8, 1936, with a total of ten weekly matches to be fired.

A special circular was sent to all club officers in November on which a special entry blank was provided, and it is suggested that club members check up with their officers to make sure their club is entered. Entries close January 15, 1936.

R. W. Hawthorne

IT IS with the deepest regret that we learn of the death of R. W. Hawthorne, of Elgin, Ill., which occurred on November 11th. He was one of the most loyal, ardent, and well-loved members of the Elgin (Illinois) Rifle Club. He was well known and liked in the community, too, and active in many civic projects.

Mr. Hawthorne's interest in rifle marksmanship dates back to the formation of the Elgin Rifle Club, of which he was secretary for many years. At the time of his death he was coach of the Lady Elgin Rifle Club and of the High School Junior Rifle Club.

The June issue of *Big-Timber Chips*, a Boy Scout publication, gives a candid profile of the man. He was described as "a king with a heart of gold—guarded eagerness . . . dry wit . . . armed with bewildering knowledge . . . a gentleman who can handle a pick and shovel . . . seldom misses the bull's-eye when the trigger is pulled."

WILMINGTON R. & P. CLUB REORGANIZES

WILMINGTON (Del.) Rifle and Pistol Club is starting the shooting season of 1936 with teams in the N. R. A. Indoor Leagues and with an excellent outlook.

C. S. Landis, the new president of the organization, announces that in little over a year the club has completely paid off a club indebtedness, for range improvement, of more than \$560.00, has engaged in 14 pistol team matches, as a club, during the last year, and faces 1936 with renewed confidence of getting somewhere as a shooting organization.

The pistol team captain for 1936 is Dr. W. G. Tanner, Ashley, Del., and the rifle team captain, C. S. Landis, Jr., who will be glad to arrange shoulder-to-shoulder matches with other clubs within a radius of 100 miles or so, or to plan for postal matches with organizations which are at a greater distance.

Plans are being made for a meeting in the near future to form a regional board consisting of representatives of rifle and revolver clubs in the Middle Atlantic Eastern district at which arrangements will be made to conduct club matches, inter-club competitions, and regional shoots on such dates that few if any may conflict with other shoots in the immediate vicinity.

COMING EVENTS

New Brunswick Rifle Club of New Jersey will hold their Second Annual Mid-Season Small-Bore Shoot, Sunday, February 2d, at their indoor range on Cleveland Ave., Highland Park, N. J. Match will be 50 shots at 50 yards, prone position. Sixty per cent returned to 1/3 of competitors. Any .22 rifle, any sights. For further details write to William F. Bley, 101 Haverford St., New Brunswick, N. J.

Fifth Annual Land O'Lakes Gallery Matches, both individual and team events, will be held at Ladysmith, Wis., Sunday, January 19, 1936; sponsored by Ladysmith Rifle Club, A. L. Dahlstrom, Secretary.

Ninth Annual Great Lakes Postal Matches conducted by Ladysmith (Wis.) Rifle Club will be fired during winter season, all entries close February 15. For program write A. L. Dahlstrom, Secretary, Ladysmith, Wis.

First Annual Gallery Team and Individual State Championship Match sponsored by Terrace City Rifle and Revolver Club, Inc., of Yonkers, N. Y., will be held at the Yonkers municipal range, January 24-26, inclusive.

Iowa State Rifle Association Gallery Rifle Matches will be held at Iowa City, Iowa, on the State University Range, March 28 and 29, 1936. The matches will consist of a Team Match and Individual Matches in each of the four positions and an Aggregate of the Individual Matches. The programs will be available about January 1st. Other tournaments for Iowa are also being planned. Information regarding all events can be secured from G. G. Cooper, Secretary, 816 Telephone Building, Des Moines, Iowa.

National Mid-winter Small Bore and Pistol Championship Tournament, conducted by N. R. A. in cooperation with the Florida State Rifle Association. Small Bore Matches at St. Petersburg, Florida, March 5, 6, 7 and 8, followed by the Pistol Tournament at Tampa, Florida, March 9, 10 and 11th. For programs write N. R. A., Barr Building, Washington, D. C.

First Annual Middle Atlantic Indoor Rifle Tournament, conducted by 102nd "Essex Troop" Cavalry, of Newark, N. J., at the Essex Troop Armory in Newark, February 14, 15 and 16th. For programs address Michael A. Jury, 120 Roseville Ave., Newark, N. J.

Beverly (Mass.) Rifle and Revolver Club will hold open shoots at their indoor range, at 9 Rantoul Street, Beverly, on January 26 (Pistol Matches), and February 22 and 23 (Rifle Matches). There will be team and individual events in both shoots. Programs and information from David C. McNeill, Secretary, 33 Beckford St., Beverly, Mass.

The eleventh annual Ohio rifle and pistol gallery matches will be conducted by the Ohio Rifle and Pistol Association in the drill hall at Fort Hayes, Columbus, Ohio, on February 21, 22, and 23. The matches are open to anyone and the program includes the fifteenth annual Columbus Dispatch Match, the Tewes Plaque Prone Match, the Midwest and Ohio Championships, both any sight and metallic sight, the eleventh annual Ohio-Ontario Match, the sixth annual Ohio-Connecticut Match, Junior Match, Senior Match, Women's Match, Railway Employees' Match, and others. For further information write Roy B. Fourman, Secretary, 1374 Hollywood Place, Columbus, Ohio.

The Fifth Annual Ohio Team Matches will be conducted by the Ohio Rifle and Pistol Association in the drill hall at Fort Hayes, Columbus, Ohio, on April 18 and 19. These matches include the League Champions Match for the Governor's Trophy, the Ohio Team Championship for the National Guard Trophy, a club team match, a Reserve Officers Match, and the Fourth Annual Buckeye-Empire Match. For more information write Roy B. Fourman, Secretary, 1374 Hollywood Place, Columbus, Ohio.

The first annual Niagara Frontier Indoor Small-Bore Championships will be conducted by the Buffalo Rifle and Revolver Club, Inc., on Saturday and Sunday, January 25th and 26th at the 174th Infantry Armory, Buffalo, N. Y. All firing will be at 100 yards. There will be a two-man-team Match; a four-man-team Match; a re-entry Swiss Match and the main event, the Individual Championship. There will be prizes for both Any Sights and Iron Sights. Write to Chester M. Bickers, 2103 Fillmore Ave., Buffalo, N. Y.

CHALLENGES

Keene High School Rifle Club of Keene, N. H., desires fifty-foot gallery team matches during the coming months. Contact Edward C. Sweeney, Jr., Manager, Keene, N. H.

Logan (Utah) Rifle and Pistol Club challenges any club or clubs to a postal shoot—50-foot indoor range—ten-man team—four positions, ten shots each, iron sights, five highest to count. Write to: Lawrence Turley, Secretary, 412 N. 1st East, Logan, Utah.

V. F. W. Rifle Club of Morgantown, W. Va., would like to arrange postal matches with other clubs. Address Harry F. Mills, Secretary, 565 First St., Morgantown, W. Va.

Glen Rock (N. J.) Rifle and Pistol Club, Inc., proposes to continue its outdoor .38 Special pistol matches throughout the winter and welcomes challenges to shoot the Camp Perry or Police "L" Courses shoulder to shoulder, Postal, or Telegraph. Address William A. Eagan, Treasurer, 33 Emerson Road, Glen Rock, N. J.

Peoria (Ill.) Reserve Officers Association desires to hear from any pistol club interested in postal matches. 50 ft. N. R. A. targets and rules. Slow fire only. Any caliber. 10 men, 5 high to count. 30 shots per man on 3 targets. Will exchange targets or scores. Address Capt. Wm. F. Ritter, 200 W. Hines Ave., Peoria, Ill.

CLUB NOTES

Metaline Falls (Wash.) Rifle and Pistol Club held a practice shoot and visitors' night at its newly constructed indoor range Friday evening, November 15th. Twenty-three men shot the usual three-stage course, 10 prone, 10 sitting, and 10 standing. Seven members of the Ione (Wash.) Club attended, as did several local visitors. Mr. Widger from Ione, the N. R. A. Sec. A. Gallery Champion for 1935 and President of the Inland Empire Rifle and Pistol Association, brought a basketful of medals to show the visitors what could be done with the right equipment and careful holding. It is a nice collection and it created much favorable interest among visitors and club members alike.

Hyde Park "Y" Rifle Club (Chicago, Ill.) opened its ninth season on December 12th with the dedication of its new 6-point range, which is housed in a special steel-construction building erected on the roof of the Y. M. C. A.'s east wing. The program opened with a dinner attended by members, their lady folks, members of the "Y" staff, and local celebrities in the shooting world. Among the speakers was Maj. F. W. Parker, a director of the National Rifle Association. The meeting adjourned to the range, where open house was the program for the balance of the evening. R. W. Holt presented a demonstration of armor-piercing bullets and other members entertained with a variety of shooting novelties.

The Third Annual Fall Match of the California Central Coast Rifle League was held on the range

of the Santa Maria Rifle Club November 3, 1935. Visitors and shooters numbered over a hundred and many shooters appeared who have not been out for a number of years, as well as a large number who were attending their first match. Santa Maria Rifle Club retained the Antognazzi Team Trophy with a score of 945 x 1000. Other team scores were: San Luis Obispo Rifle Club, 937; Taft Rifle Club, 923; Guadalupe Rifle Club, 892; Atascadero Rifle Club, 856. The Pistol Team Match was won by the Taft Rifle Club with a score of 95.37% on the Cavalry Dismounted Course. Santa Maria Rifle Club placed second with 85.22%.

The Fifth Annual Southwest Missouri Outdoor Shooting Tournament, sponsored by Monett (Mo.) R. & R. Club was held on Sunday, October 13, 1935. An indoor tournament will be held by the same club during the latter part of March or early April.

South Umpqua Rod and Gun Club of Canyonville, Oregon, was host to some 2,500 persons on November 3, when sportsmen from all parts of the state gathered at the community hall to partake of the venison barbecue dinner and participate in the trap and rifle shooting and other sports events of the day. This barbecue was voted by all the most successful of the annual events of its kind ever staged by the South Umpqua Rod and Gun Club.

Goodyear Gun Club of Los Angeles (Calif.) and the Los Angeles Telephone Rifle Club met in a small-bore match at the Pasadena Police Range on November 10, 1935. The match was shot over the ever-popular Dewar Course (50 and 100 yards) with iron sights. The Los Angeles Telephone Rifle Club won with a team total 31 points better than that of the Goodyear Gun Club.

The Maine Sniper, Official Monthly Magazine of the Maine State Rifle and Pistol Association made its debut during December. This dandy little magazine containing shooting news of Maine, will be mailed each month to all members of the State Association. Secretaries of other State Organizations interested in the idea will do well to write Editor Ralph A. Wagg, 222 Summer St., Auburn, Maine, requesting a copy of *The Sniper*.

A report of the California State Indoor Championship Matches (at 50 and 100 yards), sponsored by Oakland Rifle Club, and held on November 3, indicates that Oakland marksmen copped all individual events while Fresno shooters took first in both team matches. Milt Calhoun and Steve Hampel, both of Oakland, were high iron and scope sight shooters, respectively, in the Aggregate Match, which constituted the State Championship. Fresno Rifle Club outshot a field of six for team championship honors.

In the Third Annual North Texas Matches, held by Wichita Falls Gun Club on November 3, 1935, W. D. Nowlin of Smithville, Texas, scored 1093 x 1100 to win the rifle aggregate, while F. C. Hirdler, Jr., Norman, Okla., hung up a 246 x 300 over the National pistol course to cop the handgun championship.

When the Pelican Rifle Club of New Orleans, La., held their Turkey Shoot on Sunday, November 17th, shooters of that vicinity witnessed the return of a sport that had been forgotten for over thirty-five years. The meet was a real success and the club intends to make the Turkey Shoot an annual event.

A shoulder-to-shoulder .22 caliber 20-yard pistol match between the San Francisco Telephone and Telegraph Company and Berkeley American Trust R. & P. Club was held on November 6 on the former club's indoor range. The course was 25 shots slow fire, and was won by the American Trust by a score of 988 to 968.

In the Olympic Club .30 Cal. Rifle Team Match fired at Barry, Calif., on October 28, a young fellow by the name of Zubler of the Marlin Rifle Club shot a perfect score at 600 yards. He was told to continue shooting until he dropped out of the bullseye. However, after firing 20 additional shots (all bullseyes), Zubler became "disgusted" and quit cold. Roy Mingins, Captain of the Olympic Team, remarks, in reporting the incident, that he would like an opportunity to get mad like that himself sometime.

Guns vs. Bandits

Officer Answers Threats With Gun Fire

LOS ANGELES, Feb. 4.—Defying gun fire threats of two robbers about to burglarize an Inglewood theater safe early today, J. H. Gold, 24, private patrolman, emptied his gun at them, killing one and possibly wounding the other.—*Glendale (Calif.) News Press.*

Woman Acts Fast—Captures Burglar

With the muzzle of an automatic pistol pressed against her neck, Mrs. R. Mosso, proprietor of a cafe at 3343 Wilshire Boulevard, was opening her safe for a bandit when the match he held went out. As he struck another one she saw her chance and grabbed his gun, wresting it from him.

"He struck another one and as he did he held the pistol in front of me. I grabbed it and jerked it away from him. I turned it on him and he ran out the door with me screaming"—*Los Angeles Times.*

Prisoners Defy Guards—Two Wounded

Elizabeth City, N. C. (AP), April 4.—Two convicts were wounded and another overcome by tear gas today as guards quelled a revolt and attempted escape by a score of long-term Negro prisoners at the Woodville prison camp. The wounded were Woodrow Purdie, serving a 30-year sentence for murder, and Albert Hardlee, serving a life term for murder.

Cashier Again Saves Bank Loot

Mauston, Wis.—Asst. Cashier Russell H. Hale frustrated a robbery of the Bank of Mauston here Wednesday at the cost of being shot in the arm and side. He engaged one of the robbers in a gun fight from inside the vault.

Unnerved by Hale's plucky resistance, the robber leader dropped the loot he had collected and fled without a penny with his two companions.

This was Hale's second brush with stick-up men. On May 15, 1933, two robbers entered the bank. Hale dashed into the vault and grabbed his deer rifle. He leaped after them as they fled. In the ensuing street fight he killed James M. Miles and single handedly captured Irving J. Hill. Hill is serving 15 to 30 years now.

Hale was wounded in the right arm and side Wednesday. Friends took him to the hospital here. Doctors said the injury was not serious, although the bullet lodged against Hale's ribs.—*Milwaukee Journal.*

Youthful Burglar Shot After Holdup

LOS ANGELES, May 21 (AP)—A youth giving the name of Vernon Maribugh, 16, a resident of El Monte, was in a hospital today, critically wounded after an attempted hold-up.

E. W. Quay reported to police that the youth robbed him of \$19. As he started to flee, Quay said he seized a pistol and fired at him. After being struck, the youth ran nearly two blocks before collapsing.

Store Keeper Kills Bandit But Is Arrested for Owning Gun

Three men entered the store of Salvatore Manzella at 206 Forsyth St. in New York, and held up his wife, Mrs. Anna Manzella.

Manzella, who was playing cards in the rear, threw down his cards, snatched a revolver from a cupboard and opened fire through the doorway at the intruders, one of whom at least fired back. The storekeeper's bullets killed one of the thieves, Charles Lombardi, of 511 East 116th Street, who had a card in his pocket showing that he had a relief job. The other two got away.

Two of the bullets which the holdup men fired struck Internicola and Olaiwan, each of whom was wounded superficially in their right arms. A pistol from which two shots had been fired was found

besides Lombardi's body. When the police arrived they arrested Manzella on a charge of having a revolver without a permit.—*N. Y. Herald Tribune.*

Watchman on Floor Routs Three

Calmly firing from the floor after a bandit knocked him down, Louis Rousse, a watchman, today routed three men who broke into the United States Soft Drink Works at 1840 S. Damen Ave.

Shortly afterward Theodore Tarzan, 19, of 1951 Cortland St., was brought into the Norwegian-American Hospital, suffering from a bullet wound in his stomach.—*Chicago American.*

Burglar Slain by Armed Citizen

SAN FRANCISCO, Dec. 8 (U.P.)—Genero Beckerro, 40, San Francisco, was shot and killed today in the home of W. R. Markt.

Markt told police that he surprised a burglar in his bedroom, fired two shots in the air as the man ran, and sent a third shot at the intruder as he dashed through the front door. The bullet killed the alleged burglar identified as Beckerro.

Better Than Burglar Insurance

Burglars will show good judgment in steering clear of Glen Jernigan's drug store at Lyons, Colo. Early Tuesday morning, from his living quarters in the rear of the store, he heard somebody "kick in the front door." Getting his shotgun, which was loaded with buckshot, he watched through a window between his apartment and the store, and saw a man trying to knock the combination off the safe. Jernigan fired and, as the robber staggered across the store, fired again. One of the two robbers in the store was killed. The other was wounded and was captured later in Boulder. A shotgun is more effective than all the burglary insurance in the world in discouraging safecracking.—*Denver (Colo.) Post.*

Jeweler Finally Gets Robbers

Four times thieves had looted the little jewelry store belonging to W. A. Rusk in Los Angeles, for a total loss of \$1500, but in the early morning hours on Feb. 17 he finally got his man when he inflicted wounds upon Jerry Arbellow, alias Gerald Raymus, 28-year-old ex-convict, of 123 East Seventy-fifth Street, which caused his death a short time later in the Georgia Street receiving hospital.

On the occasion of the four previous burglaries Rusk was sleeping in his home which adjoins that of his store. But four times was four too many for Rusk, so he moved his bed into the rear of his establishment.

At 2:30 A. M. today Rusk was awakened by the sound of breaking glass in the front of his shop. Revolver in hand, he stealthily made his way to the front of the store and fired twice through the front window at shadowy forms.

Police arrested Arbellow at his home when he telephoned for an ambulance and later arrested Henry Graveson, 19, 8813 Juniper Street, and Walter Sanders, 19, of 1228 East Eighty-eighth Street, as suspected accomplices.—*Los Angeles (Calif.) Examiner.*

5 of 16 Slain Bandits Killed by Chicago Citizens

Official reports show that Chicago police have killed eleven armed bandits so far this year. That is in line with the fighting tradition of Chicago's bluecoats.

Even more interesting, however, is the fact that, in addition to the armed outlaws slain by the police, five have been killed by private citizens in self-defense. That fact is pertinent comment on the Connors bill, now before the Illinois legislature—a bill designed to restrict ownership of arms by private citizens.

Obviously neither law nor red tape is any deterrent to the armament of criminals. Five more murderous criminals would be alive in Chicago today if the citizens had previously been deprived of their right to possess arms.—Editorial from Mar. 28 issue of *Chicago (Ill.) Daily News.*

Bandit Slain by Robbery Victim

LONG BEACH, Jan. 24 (A.P.)—A man identified by papers found in his pockets as Ted de Boiser of Shelbyville, Tenn., was shot and killed last night after he was alleged to have forced L. M. Long, service station owner, to give him the contents of the cash register under threat of a pistol.

After taking the money, the man jumped into an automobile and attempted to flee. Long grabbed a pistol and opened fire, instantly killing the man.

Coroner's Jury Commends Druggist Who Shot Pair of Burglars

Glen Jernigan, the Lyons druggist, who shot a pair of Boulder burglars, killing one of them, deserves praise, no censure. The fellows were caught in the act and by wounding one of them there was uncovered many burglaries in Boulder county, relieving others than the men shot of suspicion of complicity in them and possible miscarriage of justice.

A man's home is his castle and he is not only legally but morally in the right when he defends it against criminal trespassers.

The coroner's jury commended Jernigan and with its verdict law-abiding citizens will agree.—*Boulder (Colo.) Censor.*

Thugs Annoy Store Manager

"Maybe those guys will learn to lay off."

Thus spoke Thomas Steen in injured fashion, wiping his hands of the second alleged burglar he has shot in two years.

Each attempted to rob the Atlantic and Pacific Tea Company store, in Brooklyn, which Steen manages.

Latest of his victims was William Webber, 23, who was shot in the abdomen after he and two companions are alleged to have forced Steen's assistant, Thomas Finn, to the rear of the store.

Reaching into a drawer in the rear of the store where his own gun rested, Steen aimed true and fired. The robber's two companions fled.

Two years ago Steen, in shooting an intruder, had to utilize the gunman's revolver, since he had none of his own.

At his 169 High St., Brooklyn, home, he admitted he was annoyed by these unwarranted intrusions upon his time.—*The Brooklyn (N. Y.) Queen.*

Needed—No Anti Gun Laws Here

Miami, Fla., Feb. 25 (A.P.)—Strange weapons were used in two holdups reported to police today. Max Olenick told detectives he surrendered \$62 to a bandit who brandished a milk bottle. S. M. Hosring said he was robbed of \$80 at the point of an ice pick.

Gunman Gets Everything But Gun

John Daus, who keeps a candy store at 608 South Tripp Avenue, called the Fillmore Street police last night to report that he had been robbed. "A gunman held me up, searched me, and got \$125 I had in my pockets," Daus reported. "Everything you had, eh?" sympathized the sergeant. "Well, no," replied Daus, "not everything. He didn't find the pistol I had stuck in my belt. I always keep it as a protection against robbers."—*Chicago (Ill.) Tribune.*

Robbery Dream Becomes Reality

BALTIMORE, Md., Feb. 16.—Waking from a dream his store was being robbed, Samuel Winuekour, 56, sprang from bed to discover a burglar descending the stairs of his home.

He grappled with the man and the sounds of the struggle wakened Charles Owens, 61, a boarder, who shot and seriously wounded the alleged house-breaker. The intruder was later identified as Lawrence Green, 33.



The Old Coach's Corner.

"National Rifle Association,
Barr Building,
Washington, D. C.
Gentlemen:

"Please find enclosed my application and three dollars membership fee.

"I have seen and read (cover to cover) several copies of the good old RIFLEMAN and you can't start my copies coming any too soon!

"While I do own a rifle equipped with a scope sight and also have a good target pistol I really know nothing about firearms. To be sure I know and follow the rules of safety but I am lost when I go to pick out the next gun I want to add to my collection. I can pick up an article entitled 'What Gun to Choose' or some similar title, but by the time I get down to paragraph three I am away over my head in figures 386 x 300, 7-mm., 30-30, 303, 30-40, model numbers and words, lugs, tail block; sleeve, bridge, drop, choke, bore, etc. Therefore I make this appeal to THE RIFLEMAN in behalf of all the young fellows who must be in the same boat I am. Would it be possible for your magazine to conduct a department or column devoted to the beginner? Let this department give the things that are very, very simple but still important to the beginner if he ever hopes to be able to read the fine articles in the magazine and understand them.

"Let this department take, say, ten words each issue and define, explain and possibly picture the parts so that when the word 'hammer' appears in an article the beginner will not picture a carpenter's tool in his mind and be all mixed up two lines later. Explain what is meant when they say a .30-30. These numbers surely mean something—either bore, length of barrel, or what? There are a hundred things the beginner is lost with when he meets them in reading 90% of your articles. These articles are written by experts and in their language, but just take some high school graduate and let him underline all the words he cannot explain in any of your good articles and you will have some idea of how really lost we are.

"I suppose you will think I am just plain dumb, but I'll dare you to take the paragraph I have clipped from Mr. Walter B. Cline's article in the July RIFLEMAN and ask the next ten men you see in any shooting gallery, or on the street, for the exact meaning of the words I have underlined. It's my bet the answers will surprise you.

"THE AMERICAN RIFLEMAN is a great magazine and the only idea in my mind is to make it greater, so let's help the beginners now, for they are the boys that will be writing the feature stories for THE RIFLEMAN in the years to come.

"Thanks if you have read this far, and hurry my copy on its way to

R. A. CURTIS,
7216 S. Union Ave.,
Chicago, Illinois."

Several weeks ago a letter came to National Headquarters which was so constructive and expressed so clearly a fundamental idea that it started a little quiet campaign of investigation. As a result of that investigation this new department is being added to THE AMERICAN RIFLEMAN, as an experiment.

"The Old Coach's Corner" is intended entirely for the newcomers to the shooting game. If anything technical creeps into it, it will be by accident.

We would appreciate letters from our readers telling us what they think of this idea, and the various subjects which they would like to see discussed and terms they would like to see defined by the Old Coach.

The letter which started this whole discussion was written by Mr. R. A. Curtis, and is published in the first column.

The clipping from Mr. Cline's article, sent by Mr. Curtis, reads as follows; the words set in italics being those which Mr. Curtis underlined:

"The principal questions that confronted me were: Which was the best length of barrel; the best *caliber*; best number of *grooves*, as well as width and depth of grooves; the best *pitch of rifling*; most accurate powder charge. Also the most suitable *patching material*; correct size of bullet for a given *bore*; how tight the *patched bullet* should fit the bore. Then also there was the matter of sights, weight of rifle, etc. Furthermore, I wanted to discover the reason for the occasional *off shot* that is still the bugbear of the rifleman."

There certainly is a lot of food for thought in your letter. After all, the hobby of shooting is like any other hobby, or any profession or trade. It has a lot of terms and phrases which are perfectly familiar to the experienced man but amount to "just so much Greek" to the outsider. Most of the men who write for THE AMERICAN RIFLEMAN have to be experienced shooters or their copy would not be acceptable to the editors. As a result, these fellows do unconsciously use a lot of terms that are meaningless to the man who is just breaking into the sport.

Now, take that word "caliber." There is a shooter's term that has been appropriated by the world at large. It is commonplace to speak of "the caliber of a man," meaning the size of a man, his capabilities and his dependability. In the shooting world "caliber" has two distinct meanings. To the artilleryman handling three-inch cannon and larger, caliber means the length of the barrel with relation to the bore. A 12-inch 30 caliber Seacoast Rifle is one in which the barrel is thirty times the diameter of the bore, or in other words thirty feet long. In small arms parlance, on the other hand, caliber means the diameter of the bore expressed in hundredths of an inch or in millimeters.

The U. S. Army Springfield, caliber .30, has a bore diameter before the rifling grooves are cut, of .30 inch. The popular .22-caliber rifles have a bore diameter of .22 inch. Of course, when the grooves are cut in the barrel to form the rifling, the diameter to the bottom of the grooves is increased.

Inasmuch as different manufacturers and different cartridges require different standards of manufacture as to the type of rifling and the depth to which the grooves are cut, the figures for caliber are merely close approximations. They serve more as a standard means of identifying some particular rifle than as a means of indicating the actual diameter of the bore.

You ask about the meaning of "rifling grooves." Well, the first step in making a rifle barrel is to bore a cylindrical hole straight through the barrel blank. After this has been done, the rifling machine is put to work cutting the spiral grooves which will give the bullet the required spin to hold it point-on to the target when it is fired. As the grooves are cut, some of the metal is naturally left standing in

the bore between the various grooves. These raised spirals which separate the grooves are known as the "lands," so that when finished the rifle barrel consists of a series of spiral "grooves" and "lands."

Now, the "pitch" of the rifling is a term used to indicate the degree of twist of these alternating lands and grooves inside the bore, or you might say that it indicates just how fast the bullet will be spun as it travels through the bore. Some rifles have a pitch of one turn in ten inches; some will have only one turn in twenty inches. In other words, if you were to fasten a bullet to the end of a rod and push it through the bore, you would find that it would turn, and would have made a complete revolution when you had pushed it ten inches or twenty inches, as the case might be. The pitch of the rifling has to be figured out so that the bullet will be given enough spin to keep it from tumbling in the air. You know that a bullet is like a gyroscope top, depending upon the speed of its spinning to keep it steady. Some bullets have to be spun very rapidly to accomplish this, while others can be spun more slowly.

The next phrase in Mr. Cline's article which you don't quite understand is "patching material," and you also ask about the companion phrase "patched bullet." We don't hear very much about patching material or patched bullets these days unless we happen to be members of that clan who have recently undertaken a revival of the old muzzle-loading target-shooting game. Patching material and patched bullets seem to have been an American invention. In the early days of the muzzle-loading rifle, the European rifleman hammered the bullet into the rifle bore with a mallet. This was necessary because the rifling in the barrel resisted the efforts of the rifleman to force the bullet down on the powder charge. It made for very slow loading and did little to help the accuracy because the bullet was certain to be more or less deformed in the hammering process. When the light Kentucky type of flintlock rifle was developed by our frontiersmen, and came to be used in the field where hostile Indians made quick loading imperative, it became necessary to evolve some method of ramming the bullet down the barrel and on to the powder charge in a hurry. Our riflemen figured that if they could find some way of lubricating the bullet slightly it would be a big help. They began casting their bullets a trifle smaller than the bore diameter, then taking a small square of tallow-coated linen or paper-thin buckskin, placing this "patch" over the muzzle, centering the bullet in the center of the patch over the bore, and ramming the whole thing, patch and bullet together, down on the powder charge. The result was a speed of loading

which astonished the Europeans. An unexpected result was improved accuracy because the bore was slightly lubricated, the bullet was not deformed in the loading process, and also, probably, because the patch served as a slight gas check which to some extent eliminated the deformation of the bullet when the ignited powder sent a sudden rush of hot gases against the base of the bullet.

An interesting by-product of this method of bullet-patching was the use of paper-patched bullets in some of the early metallic-cartridge rifles. The paper patch, which was placed around the bullet before it was inserted in the metal cartridge case, was intended to serve much the same function of providing a gas check and some slight lubrication as had been the case in the older hand-patching methods used with the muzzle-loaders.

From this paper-patched bullet came the later designation "metal-patched" to indicate bullets having a lead core protected on the outside with cupro-nickel or gilding-metal jackets. Nowadays this type of bullet is usually referred to as metal-jacketed, but you will still see occasionally in an ammunition-manufacturer's catalogue the capital letters "M. P." or "F. M. P." following the name of some particular cartridge. These initials merely mean "metal patched" or "full metal patched"; in other words, metal-jacketed bullets.

Incidentally, while we are on the subject of metal-jacketed bullets, don't let anyone ever talk to you about steel-jacketed bullets. There "ain't no sich animal." Steel-jacketed bullets have been experimentally made and fired. They have disadvantages which we won't discuss here. All the metal-jacketed bullets used in this country outside of experimental laboratories have a jacket consisting of some copper alloy which is tough, has self-lubricating characteristics, and is softer than steel so that it can be forced into the rifling without injuring the barrel or creating excessive pressure.

You also underline the phrase "off shot." Well, an off shot is merely one which strikes the target outside of the normal shot group, even though the aim was perfect. That is, if a rifleman is shooting so that his group of shots normally measures 3 inches from top to bottom and an equal distance from right to left for nine shots, while the tenth shot flies off two or three inches outside of the group, this wild shot is the "off shot" or the "unaccountable" that causes a rifleman to begin figuring what ails his gun, ammunition, or sights.

In your letter you suggest that I explain what is meant "when they say a .30-30." A lot of our modern shooters are confused by the variety of terms used to

describe various cartridges. The hyphenated designation ".30-30" is really a survival of the old black-powder days. The first numeral, .30, indicates the caliber; the second numeral indicates the charge of powder for which the cartridge was originally designed. In other words, the .30-30 is a .30 caliber rifle with a case designed to fire a charge of thirty grains of a certain smokeless powder. The .32-40 is a .32 caliber rifle which originally used a charge of forty grains of black powder.

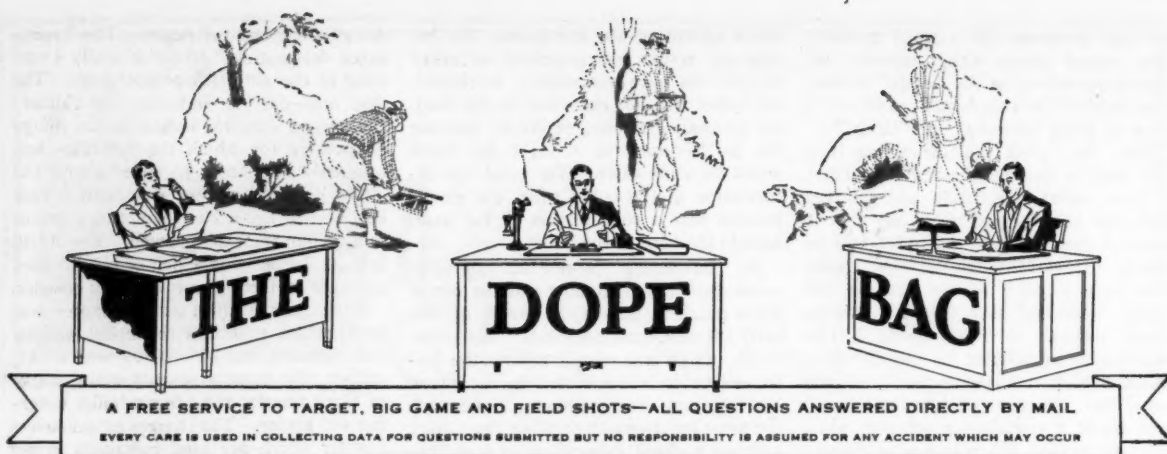
Sometimes a third set of figures was used, which indicated the bullet weight. For instance, the .45-70-405 was a .45-caliber rifle using a seventy-grain charge of black powder and firing a bullet weighing 405 grains. The charges of smokeless powder which are used nowadays in old black-powder cartridges of course do not weigh as much as the old black-powder charges did. Smokeless powder charges must be determined for each lot of powder turned out by the powder mill. This is the job of the ballistic engineers in the powder and cartridge factories. Sometime, if you like, we will talk about the method of determining pressures and velocities and powder charges.

With the advent of the modern high-velocity cartridges another set of hyphenated numbers has been introduced to describe certain cartridges, such as the .250-3000 Savage, for example. In this case the figure 3000 represents the muzzle velocity of the bullet. The .250-3000 is a .25 caliber rifle firing a bullet with a velocity, at the rifle muzzle, of 3000 feet per second.

Incidentally, there are a couple of articles in this issue of *THE AMERICAN RIFLEMAN* that may be of interest to you: "An Introduction to Reloading" by Townsend Whelen, and "A Few Notes for Four-Position Target Shooters" by Morgan G. Holmes contain some dope that should be helpful to newcomers in the game. They may contain some tricky, technical phrases, but if you find anything that isn't clear to you, let me know.

I would suggest that you keep an eye on the Dope Bag from month to month, particularly the reports on the tests of new equipment. I know the Dope Bag is full of technical terms and phrases, but you will be able to understand most of them, and the facts which are given should be a big help to you.

It occurs to me that you might be interested in some of the better shooting books from time to time. I don't know of anything that contains more real helpful information in plain, easy-to-understand language than Captain E. C. Crossman's "Book of the Springfield." You can obtain this book from the Book Department at National Rifle Association Headquarters. The price is \$4.00.



Conducted by F. C. Ness

Small-Bore Target Loads

WHAT is sauce for the goose is not necessarily sauce for the gander, and this is particularly true when small-bore rifles represent the respective genders of waterfowl and the sauce is target ammunition. One rifle groups its best with a certain lot and brand of ammunition, while a companion arm performs better with some different cartridge. The thing to do is to carefully fire under uniform rest conditions at least five 10-shot strings with each lot and brand to determine the tastes of a given bore. We did this recently and learned the following facts about our own equipment. All quoted group averages are based on measurement taken between centers of the two widest spaced bullet holes of each 10 shots.

Our heavy-barrel 52 Winchester preferred Palma Veez-33 to the tune of .650 inch as an average 10-shot group size at 50 yards. This rifle, in 350 shots, averaged .750 inch with all loads. With a certain greased lot of Dewar Match it gave its very poorest 50-shot performance, which was an average of .940 inch, somewhat better than necessary to score possibles on the .890-inch 10-ring.

This same lot of Dewar Match was practically the first choice of our heavy-barrel 417 Stevens with an average of .660-inch, it being nosed out by greased Tackhole, which had an average of .600 inch in this Stevens barrel. Contrariwise, Palma Veez-33 was the worst performer in this rifle with an average of .887 inch, which is, however, smaller than the 10-ring. The mean of all loads (350 shots) for this standard Stevens was .779 inch.

Barr's special 57 Winchester, restocked by himself, made its best showing with

greased Tackhole with an average of .687 inch, and its poorest showing with greased Dewar Match which averaged 1.39 inch, this being the worst of the entire test. The mean of all 350 shots in this rifle was .910 inch per 10-shot group with all loads.

Barr's standard 52 Winchester gave an average of .909 inch with all loads, or just a small fraction better than his Model-57 Winchester. Precision AZ34-BB gave the best average or .797 inch in this 52 Winchester. Kleanbore, Filmkote, Tackhole and Palma Veez-33 followed in order, while the worst average groups were obtained in this rifle with greased Dewar Match, Filmkote Dewar Match and greased Tackhole.

In all four rifles as a group this same last-named lot of greased Tackhole out-shot all the loads with a 200-round average of .746-inch. It was closely followed in order by Kleanbore, Precision and Palma Match. At the bottom of the list was greased Dewar Match with a mean of 1.015 inches for the four rifles. This is still about 1/10-inch smaller than the maximum limit required for a possible.

The standard M-1933 Savage target rifle was included in a similar test of the four lots of Peters ammunition. In this rifle the best average was with greased Dewar Match with a 10-shot mean of .790 inch for 50 shots. Its poorest showing was an average of 1.712 inches with Filmkote Tackhole. In all five rifles, greased Tackhole led with .772 inch. The two lots of Dewar Match tied with .968 inch each, and Filmkote Tackhole landed at the bottom with an average group of 1.000 inch.

While greased Tackhole gave an outstanding performance in this test, Palma

Match deserves honorable mention, because it was two years old, the other loads being comparatively fresh. All lots tried proved good enough to be classified as target ammunition, but the necessity of exact selection for the individual rifle was clearly indicated. U. S. C. Co. and Western target ammunition was not included in the test, because none of either was available at the time.

Barr did all the shooting with scope sights from prone rest. Only two scope sights were employed interchangeably on the five rifles, these being the Malcolm and Unertl small-game scopes with cross-hair reticules. Uniform conditions of light and temperature were chosen, each rifle and separate lot of ammunition being fired in part on two different days.

Check shooting with old target ammunition and with fresh hunting ammunition clearly showed the superiority of the fresh target loads. The aperture sights were checked against the scope sights under even conditions and the average was more than 5/16 inch larger for the aperture front sight. This is .312 inch, or more than 1/2-minute of angle, in favor of the scope. It would be more than 3/8 inch at 100 yards. A check with the post or blade front sight against the scope gave the latter an edge by a .350-inch per average 10-shot group at 50 yards. This difference, of course, would vary with the individual marksman, according to his vision and sight preference.

At 100 yards the groups would be proportionately larger, or twice the diameter of the 50-yard group plus 1/4 inch when shooting under a favorable weather condition. The 100-yard handicap under an unfavorable air condition might be 1/2-inch or

more. Hence, the bigger 50-yard groups would not score possibles at 100 yards, again indicating the importance of selecting ammunition for the individual rifle.

For those who may be interested, we are giving in fractions the size of each 10-shot group with the loads found best in each rifle tried at 50 yards.

Heavy-barrel 52 Winchester and Palma Match Veez-33, 11/16, $\frac{5}{8}$, 9/16, $\frac{5}{8}$ and $\frac{3}{4}$ inches. Same rifle and Precision AZ34-BB, $\frac{3}{4}$, $\frac{3}{4}$, $\frac{3}{4}$, $\frac{5}{8}$ and $\frac{5}{8}$ inches. Same rifle and greased Tackhole, 11/16, $\frac{3}{4}$, $\frac{3}{4}$, $\frac{3}{4}$ and $\frac{5}{8}$ inches.

Heavy-barrel 417 Stevens and greased Tackhole (9-R-A-8) $\frac{5}{8}$, 11/16, $\frac{1}{2}$, $\frac{5}{8}$ and 9/16 inches. Same rifle and greased Dewar Match (19-E-A) $\frac{5}{8}$, 13/16, 11/16, 9/16, and $\frac{5}{8}$ inches.

Standard 52 Winchester and Precision AZ34-BB, 11/16, 13/16, 11/16 and 1 inch.

Special 57 Winchester and Lubricated Tackhole, $\frac{5}{8}$, 13/16, $\frac{5}{8}$, $\frac{3}{4}$ and $\frac{1}{2}$ inches. Same rifle and Kleanbore (L-18-N) 9/16, $1\frac{1}{8}$, $\frac{7}{8}$, 11/16 and $\frac{7}{8}$ inches. Same rifle and Palma Match Veez-33, $1\frac{1}{8}$, $\frac{5}{8}$, $\frac{7}{8}$, $\frac{3}{4}$ and $\frac{3}{4}$ inches.

THE WILSON SHELL TRIMMER

AT Camp Perry, L. E. Wilson, of Cashmere, Washington, showed us his overall case-length gauge and shell-trimmer for the .30-'06 caliber. Now we have received one for trial. The base ($\frac{3}{8}$ -inch thick) is in the form of a track an inch wide and just over $4\frac{1}{2}$ inches long. In one end is fixed a reamer-like cutting tool with a crank for turning same. The reamer has a limited travel being stopped at a definite point by a nut on its shank. In the opposite end is fixed a post as a stop for the base end of cartridge case. A shell holder is used to align and keep the case in proper position for trimming. This holder is an inch steel cylinder $1\frac{1}{2}$ inches long designed to rest on the track base.

In use the crank is turned and at the same time forced forward until stopped by its nut, this forward position being carefully adjusted for the standard case length. Hence, cases of normal length will not be trimmed, but merely chamfered (beveled inside the mouth). Cases which have been stretched in the neck or elongated by sizing or firing will be automatically cut to standard length. Subnormal cases will be detected when tried in this tool and can be segregated or discarded. If desired, the trimmer can be had without the chamfering provision. The regular cutter has four cutting edges for trimming and two for chamfering.

This Wilson case trimmer provides a very convenient means for standardization of case lengths, and a very quick one. The shell is placed in the holder which is then

rested on the track base while the crank is given from six to ten turns. The maximum amount of shortening of some of Barr's cases fired in his M-1917 rifle was about $\frac{1}{64}$ inch. Sometimes the trimmer left a wire edge at the case mouth. This, however, is easily removed by a burring tool or hand shaver, which comes with the main tool. This burring gadget for removing any rough edges is about $1\frac{1}{2}$ inches long and it has four cutting edges. Because the alignment is accurate and the cutting operation is uniform this tool also serves to reveal varying and uneven thickness of the brass in the case neck.

THE WOLLENSAK RIFLESCOPE

ANOTHER cheap scope sight has come over the horizon to compete with the several others in the ten-dollar class. It is of the target type with two ring-mounts, being adjustable in small units, but without "click" detents. It is so similar in every way to the ten-dollar Sears-Roebuck Ranger model one naturally assumes they are both made at the plant of the Wollensak Optical Company in Rochester, New York. Where the very poor finish has already rubbed off in numerous places, the tube shows a yellow color like brass. Barr's report follows.

The Wollensak 4X scope sight has a $\frac{3}{4}$ -inch tube $15\frac{1}{4}$ inches long and finished a dull black. This finish is easily removed, much of it being scraped off by sliding the front-mount sleeve in place, and also by the sliding contact between mount-plunger and sleeve-groove. The purpose of this 2-inch sleeve is to guide the tube in the front mount and prevent rotation. The eye relief is $1\frac{1}{2}$ inches and the field of view is 23 feet at 100 yards. The definition and image brightness are good enough to be practical, but not equal to some of the other low-priced scopes tried. The reticle is a coarse cross-hair.

The Wollensak was tried on the M-69 Winchester which is an eleven-dollar target-training rifle, and on the 056 Buckhorn Stevens in the same class. The micrometer mount-screws, being without "clicks", can be adjusted by touch or feel as finely as the shooter's skill permits, but, of course, not definitely or exactly, either by ear or eye, on account of the rather coarse graduations. There are twenty of these marks equalling one complete revolution of top screw or side screw.

With mounts separated 7 inches, center-to-center, one complete turn, or twenty graduations, changed the impact $11\frac{1}{2}$ inches at 100 yards. Twelve graduations moved the impact about $3\frac{3}{4}$ inches at 50 yards. Sixteen graduations changed the impact $5\frac{1}{2}$ to $5\frac{3}{4}$ inches at 50 yards. This is an average of .325-inch change per graduation at 50 yards or .650-inch at 100

yards. These average figures agree exactly with the factory figures. However, the actual impact changes obtained at different times were .287, .312, .343 and .359 inch per graduation at 50 yards. As stated above, all uniformity of adjustment depends on the senses of feel and vision and the care and judgment of the operator. Some shooters might get closer uniformity with these same mounts, while others would not equal Barr's results.

Being centrally-placed, bridge-type outfits, the Wollensak and Sears Ranger as sights are stronger and more reliable than two other designs of the cheaper scope sights, which are weakened by overhang and, by abbreviated anchorage, are made particularly vulnerable to moderate bumps or strains, which cause frequent changes in zero. While it may be considered a practical training scope sight, the construction is essentially cheap and it can be recommended only for forced economy purposes. The idea of leaving off "clicks" is a good one where low-price mounts are concerned. Finally, too much should not be expected from a ten-dollar investment. This Wollensak would undoubtedly outshoot any ten-dollars worth of metallic sights.

In physical comparison the Lyman 22 Junior Fieldscope is $12\frac{1}{2}$ inches long and has a field of 38 feet at 100 yards. It is one of the best cheap scopes optically, but has very coarse cross hairs. It is one of the poorest mechanically. The adjustments are not reliable, and the anchorage is too short to hold its zero, once adjusted. The new improved model with better adjustments and broader base has not been submitted for test. This Lyman scope has a larger exit pupil than any of its competitors and would be rated highest in relative luminosity.

The "XXX" Malcolm, which sells at \$10.50 without mounts, is 15 inches long and has a 24-foot field at 100 yards. It is very good optically and has very fine cross hairs. It is a strongly constructed scope, adapting it for considerable recoil. It is adapted for Malcolm, Lyman or Fecker mounts, which would add to the cost and lift it out of competition with ten-dollar sights.

The Mossberg No. 6 is $15\frac{1}{4}$ inches long and has a field of 22 feet at 100 yards. It is the equal of the Wollensak and Sears optically and has medium-fine cross hairs. The adjustments are more reliable than is the narrow anchorage, which defect in its design makes a constant zero unlikely if not impossible.

The Wee-Weaver 3-29S with internal "click" adjustments and achromatic lenses is one of the best optically and mechanically. It is greatly superior to the Wee-Weaver 3-29 with $10\frac{1}{2}$ -inch length and 26-inch field of view. Optically it is fine but the cross hairs are fairly coarse. The

micrometer "click" adjustments gave us very reliable impact changes of $\frac{5}{8}$ -inch per "click" at 100 yards. In strength of design it leads its competitors.

A very complete instruction sheet accompanies the Wollensak Riflescope to give the adjustment values on 6-inch and 7-inch mount-separations. It also recommends the proper separation of bases for each rifle and lists the heights of front bases and rear bases for each rifle. Such rifles as the Buffalo Newton and the 7.62-mm. Russian are included in this comprehensive list, implying that the Wollensak is built to withstand the shock of considerable recoil. We are skeptical but willing to be shown and will report on that feature later.

THE 42X BROWNSCOPE

THE Brownscope Company, 234 5th Avenue, New York City, sent us a draw-tube telescope for examination. It has three metal draws extending the length to 24½ inches from 7½ inches closed. The finish is bright like chromium plating. The barrel, or body, has a maximum diameter of 1½ inches, and is covered with a black corrugated material. In attractive appearance, it closely resembles the Wollensak telescope.

The exit pupil is about 1-mm. and the objective lens 35-mm., with an apparent clear aperture of about 34-mm. The power is between 35X and 50X. Barr says it makes .22 bullet holes at 50 yards appear about the size of .35-caliber holes near the eye, or about two feet removed. That would indicate 45 to 50 magnifications. This power cuts down the light and field of view somewhat, but both are sufficient for practical results.

We checked it against the 15X Wollensak which has a 30-mm. objective and 1-mm. exit pupil, according to our own measurements. At 200 yards both scopes showed .22-Hornet bullet holes in the white on a brightly lighted target and in the black at 100 yards. Both failed with shade on the target, although the Wollensak has a brighter image. At both ranges the Wollensak showed slight superiority, because, even on a cool day the Brownscope showed considerable mirage, or heat waves, on account of its high magnification.

Barr has a good English Ross scope, which is a 30X draw-tube and he used it with the Brownscope at 50 yards after sundown in poor light. Although the Ross was brighter, the high magnification of the Brownscope made it keep step with the Ross until the light failed entirely for both instruments.

Later we tried the Brownscope and 15X Wollensak at 50 yards in the evening and observed a peculiar see-sawing of relative efficiency between the two as the

light waned. First the two were even, then the Wollensak forged ahead as the light faded and then the Brownscope appeared the better, and again the Wollensak until both finally failed to show bullet holes in the black. As we used them the Wollensak covered the entire 5-foot paper, while the Brownscope showed less than two feet of the center.

Without recommending it for spotting holes, I will say that the Brownscope appears to be a good value at its low price, wherever or whenever a scope of that power is desired for any purpose. For efficient .22-caliber spotting, the objective aperture should be twice as large, or the power should be cut in half. As it is, it would probably make a satisfactory pistol glass at its low price.

WHO WILL DO IT?

WHO can supply documentary proof that the French type flint-lock musket was manufactured in the United States during the Revolutionary War? Also is wanted similar proof that guns were made at Valley Forge during the Revolution.

What is wanted is a quotation from state or government contracts, from the manufacturer's letters or receipts or from any legal claim with source references in detail so that complete photostatic copies of the original may be obtained. It is desired to clear up this historical question, hence, definite proof is essential. Unsubstantiated claims of such authorities as Sawyer or quoted statements from books will not do it. Documentary proof is necessary. Who will have the signal honor of definitely settling this dispute?

TRYING REDUCED MILITARY TARGETS

BILL DIERS came back from Quebec (and from a hunting trip which we had to miss) with two black bear killed at short range with his 30S Remington rifle and the 165-grain Kleanbore cartridge, caliber .30 Remington rimless. Upon his return he turned over to us the rifle and all unfired ammunition which we, in turn, turned loose on the Albert Shay reduced targets at 100 yards.

The .30 Remington Express Mushroom

This rifle has a bright gold bead band and 48R receiver peep sight with target disc. The distance between sights is 26½ inches. We multiplied this radius by the

factor, .000291 and got .0077 inches, representing the amount of raise or sight-movement required for each minute of angle of change of zero on the target. The 48R slide has 25 graduations to the inch, or .04 inch space between lines on the scale. Dividing .0077 into .04 we got approximately 5.2 minutes as the value of each graduation. At 100 yards when proven on the target one graduation moved the impact 5.4 inches or 5.2 minutes of angle.

The front sight is $\frac{7}{8}$ inch or .875 inch above the bore axis. With the rifle zeroed at 100 yards we fired a group at $\frac{1}{2}$ the range, or 12½ yards. The group should have been nearly an inch below aim. However, the muzzle-range impact was only .281 inch low, indicating an angle of departure of 3.7 minutes, a minute being worth .161 inch at this short range. Like the similar, but rimmed .30-30 Winchester cartridge, this .30 Remington rimless load develops 2250 f.-s. muzzle velocity and 1860 ft.-lbs. muzzle energy. It has a high mid-range trajectory of 4.5 inches over 200 yards and 12 inches over 300 yards. Agreeing with our own findings the 100-yard elevation is quoted as 4 minutes of angle. The elevation quoted for 200 yards is 8 minutes and for 300 yards, 13 minutes.

The trigger pull and stock were both very well adapted for accurate shooting, but that gold bead glittered and glared in the bright sunlight. Through the large threaded aperture the bead was so poorly defined that no definite aim was possible, and the 100-yard group measured 10 inches vertically. With the target disc replaced definition was slightly improved and the group improved to 8 inches. Then the bead was smoked in the flame of a match and the biggest group thus fired measured 4¾ inches. Two check groups measured 3 inches and 3½ inches. With the bead left black but the target disc removed, the group immediately enlarged to 6 inches. The above shooting was from prone position, but without rest. Barr tried a group from standing which went into 6½ inches.

Reduced Military Targets for 100 Yards

The reduced military targets designed and copyrighted by Albert J. Shay are printed and distributed by the Shooters Service Company, 165 Williams Street, New York City. The solid black bulls of these nicely printed targets showed clearly against their white background in the afternoon sun. They looked easy, but our scores were disappointingly poor. The .30-caliber 100-yard National-Match Rifle-Course Target A-200 has a 5-inch black bull. With the .30 Remington we scored 43 and 44 X 50. Our 5-shot prone scores were only 22, 21 and 23 X 25. The A-300 Target has a 3¼-inch bull and is intended for prone rapid-fire

at 100 yards. Our slow-fire scores were 22 and 24 X 25. Barr scored 20 X 25 from standing with the .30 Remington. These targets are intended for .30-caliber rifles and iron sights, particularly for the Model-1903 Service rifle as issued.

Some .30-'06 Groups and Scores

As a check on our shooting of these targets with the .30 Remington rimless Barr and I rounded up odd lots of old .30-'06 ammunition and tried the Shay reduced targets again, this time also with the Model-30S as issued. We blackened the bead and fitted a sling. On the 200-yard offhand target our scores tied at 42 X 50. On the 300-yard rapid-fire prone target we tied again on total score, although Barr had a 5-shot possible for one stage. Our groups at 100 yards ran, 2 $\frac{7}{8}$, 3 $\frac{3}{8}$, 3 $\frac{5}{8}$, and 2-1-16 inches.

With Barr's M-1917 Sporter our groups ran 3 $\frac{1}{2}$, 5 $\frac{3}{4}$, 4 and 3 $\frac{1}{4}$ inches with four different brands and types of .30-'06 factory ammunition. One 6-inch group scored 41 X 50 on the 600-yard prone target, while a 7 $\frac{1}{2}$ -inch group scored 44 X 50. On the 1000-yd. target Barr scored 49 X 50 against my 45 X 50. From our experience, I would say that these reduced targets, in common with the military targets from which they were reduced, put a premium on proper placement of the normal group or on the consistent placing of hits rather than on the size of the total group. Also, these targets appear to be very practical and well-designed for their intended purpose.

Albert J. E. Shay, president of the Brooklyn Rifle & Revolver Club, gives some of his ideas on his targets as rewritten here. Many of our riflemen are mainly interested in military rifle shooting and the Service rifle, but the facilities at State ranges are very limited to civilian clubs, because they are almost always in use by the National Guard. Most clubs have at least 100 yards available for outdoor practice. Consequently, I conceived the idea of reducing the targets used in the National Match Course to a distance conforming with the range available.

As the greatest need was for offhand practice and for rapid fire the A target reduced from 200 yards to 100 yards and from 300 yards to 100 yards was first evolved. To complete the course, target B was similarly reduced, and then target C likewise. The idea was to confine these targets to the use of Service rifles as issued. Either full-power or reduced loads were to be used with strict adherence to National Match positions and regulations.

The first try-out of these targets at 100 yards was gratifying, because the scores of the offhand and rapid-fire stages were just about normal for the actual course as gleaned from the old

score book and past experiences at Camp Perry. With reduced loads and cast bullets our first score over the course on the new targets was 268. The next day our score was 273, using jacketed bullets with reduced loads. Incidentally, Mr. Shay duplicated this score in the National Team Match at Camp Perry as a member of the New York Civilian Team No. 1. Any club which lacks military-range facilities should try these 100-yard targets for practice firing of the National Match Course. If they become popular, inter-club military matches on these targets may develop by spring.

NO. 6 GIVES BETTER RESULTS

AT Camp Perry I bought a can of the new duPont No. 6 pistol powder from the Westchester Trading Post and turned it over to Barr, whose regular handload for the .38-Special has been 3.8 grains weight duPont No. 5 pistol powder. In Barr's S. & W. K-Model and in our Colt Shooting Master we got appreciably better accuracy as soon as we switched to the new No. 6 powder. The results remained consistently better as we continued the comparison tests. We included the S. & W. Outdoorsman and the Colt Army Special revolvers and again No. 6 showed its superiority to the No. 5 powder by scoring as much as five points higher at 50 yards on alternate strings. Ten-shot groups at 50 yards ran smaller when using No. 6 powder by $\frac{1}{4}$, 1, 1 $\frac{1}{2}$, 2 $\frac{7}{8}$ and 3 $\frac{3}{4}$ inches in these guns. The same cases, primers, bullets, charge-volume and loading methods were used with both propellants. It is worth a trial.

THE WINCHESTER MODEL-12 HEAVY DUCK GUN

A NEW duck gun has appeared and it is one designed to interest gunners who frequent waterfowl passes, fox trails or the habitat of the wary gobbler. Barr has it out now in the realm of the elusive wild turkey in a two-day opportunity for getting this hoped-for Thanksgiving dinner. It came from Winchester with two boxes of 3-inch 12-gauge cartridges loaded with 1 $\frac{3}{8}$ ounces of No. 5 chilled shot and the equivalent of 4 drams bulk powder.

A Slide-Action for 3-Inch Loads

Oddly enough, it is a hammerless slide-action repeater, but then we have long ceased becoming surprised at anything that enterprising W. R. A. Co. may do. Formerly the 3-inch "Super Twelve" load was adapted only for about three heavy double guns, namely, the Lewis Magnum, the Super Fox and the big L. C. Smith. Now, of course, there is also a heavy Ithaca, as well as the M-21 Winchester, both doubles.

The new "pump" gun is practically a replica of the well-known Model-1912 Winchester hammerless repeater. The receiver is heavier and so is the barrel, the new gun averaging about a pound heavier than the 7 $\frac{1}{4}$ -pound standard M-12 in 12 gauge. The balance point is at the barrel breech or take-down joint, and in spite of the 32-inch barrel and the extra pound of metal, it is not as slow or "poky" as one might expect.

We tried it on hand-trapped Blue Rocks and began right off getting them all at all angles. With short Skeet loads of No. 9c, however, we lost five straight before we "caught on" and changed our timing to get them nearer the gun. This indicates it is not as fast as the standard Model-12, but nearly so. This must be credited to the improved buttstock, as well as to favorable balance. The stock has a hard-rubber plate and a real, full pistol grip curved close to the guard. It is the Skeet style of stock with a comb drop of 1 $\frac{1}{2}$ X 2 $\frac{1}{2}$ inches, and a 14-inch length, butt to trigger. Such a stock affords excellent control of this extremely long 8 $\frac{1}{2}$ pound gun. The "pump" handle is the standard model-12 type.

The take-down system is the same as on the standard Model-12 and it has the same provision for taking up wear or looseness in the joint. Mechanically, the sample was not as good as other guns of the same model we have used or examined. The exposed side of the breech block was roughly scratched. The wood was not as perfectly fitted as some others we have seen, and the breech action did not close properly, but was driven forward an appreciable final distance by the hammer, apparent when dry shooting. Most annoying was the failure of the action-slide lock to function properly. The recoil lock requires a slight forward motion of the slide for release, but it is intended to release automatically on discharge. Its failure to release on discharge made it impossible to shoot doubles with this particular sample until the slide had been manually pulled forward after discharge, which requirement introduced an appreciable handicap. While the magazine plug may have been responsible, I am inclined to blame the fitting of the action, because primers were indented off center.

There was only one other source of annoyance and that was the very sharp edge of the chamber at the extreme breech, which in spite of our care cut long curly slices and shavings from our pet Parker-Hale cleaning rod. The bore was surprisingly free of lead after shooting those powerful Super-Speed loads, and it was very easy to clean. We used those new 7-inch Hoppe patches over our Tomlinson brass-gauze cleaner and had the bore gleaming after the third patch.

That 32-inch barrel has no rib and we did not miss it. Being a duck gun the magazine is plugged to take only two shells, which plug can be removed to increase the capacity to five shells when and where Federal regulations will permit. The magazine and chamber will, of course, also handle any standard 12-gauge load. We tried several types in it. While the recoil was appreciable, it was not excessive, and, in fact, we could not discern any practical difference in recoil effect when shooting the standard heavy duck loads. All loads seemed to shoot to the same zero up to 40 yards in this heavy barrel.

The 3-Inch Super-Speed Load

The W. R. A. Super-Speed 3-inch cartridge in 12-gauge is 2-13/16 inches overall unfired, the 3/16-inch difference representing the crimp allowance at the mouth. The depth from the round crimp to the shot wad is 1/8 inch. The whole paper case and hard crimp is protected and stiffened by a heavy lacquer coat.

Opening this crimp we found a very heavy card wad on top of the 1 3/8-ounce load of No. 5 chilled shot. The standard count would be 237 pellets. Our own count was 242. Next came a 3/8-inch pink-edge wad of white felt followed by a 3/8-inch black-edge felt wad. These two thick wads were followed in turn by a thin, hard, paper-backed, felt wad over the powder. The powder load weighed 42.4 grains. This (Herco) powder was in the form of flat, round discs perforated in the middle and evidently of a semi-dense, progressive-burning type. In other respects it resembled Infalible, especially in disc size and in color. The case was a low base, high-brass type made of very heavy paper.

The instrumental velocity of the 3-inch 1 3/8-ounce load is the same as that of the standard load of 1 1/4 ounces in 2 3/4-inch Super-Speed cartridges as loaded by Winchester. Both loads develop a mean velocity of 1010 f.s. over a 40-yard range.

At 20 yards 90% of the shot load landed inside a 15-inch circle, indicating a full-choke barrel. Other light and heavy loads of No. 9, No. 6 and No. 4 chilled shot in standard 2 3/4-inch factory cartridges spread more, of course, in this same 3-inch chamber. Using the same barrel, these shorter standard loads placed from 85% to 94% of their respective shot charges inside a 26-inch circle at 20 yards. This is the equivalent performance of a modified choke. A small definite mark was used and the gun was aimed as nearly as possible like a rifle. The center of impact was exactly on the point of aim at 20 yards. To maintain this central placement of the pattern, at 40 yards we had to aim 4 inches high and at 60 yards, 8 inches high, which gravity

drop indicated the reasonably flat trajectory of the shot column.

We used a 28" x 28" target, containing 87 squares, each 3" x 3". At 60 yards only 36% of the shot charge, or an average of 87 pellets, hit the target, which means exactly one hit per 3-inch square. The 30-inch circle showed an average of 33% at this range, or a bit better than one hit per 3-inch square.

At 40 yards the first shot, out of a clean and very lightly oiled bore, was the best with 175 hits or 72.5%. The last shot fired at 40 yards was the poorest with 149 hits or 62%. The average was 162 hits and 67.5%. In the standard 30-inch circle the average was 65% or 2 hits per 3-inch square at 40 yards. After 5 shots had been fired the bore was examined for lead. There were no streaks at the breech end and only two minor ones near the muzzle. The shooting was continued without cleaning. To show the very even distribution, the following table for the first five shots at 40 yards is given:

8"-Circle	15"-Circle	26"-Circle
21 hits	68 hits	141 hits
20 "	56 "	125 "
24 "	64 "	136 "
18 "	63 "	122 "
19 "	55 "	130 "
21 "	62 "	132 "

Some Standard Loads Tried

At 40 yards a few 2 3/4-inch loads were tried in that 3-inch chamber to see how much their patterns would open. Federal Hi-Power Oval No. 4 chilled averaged 125 hits or 65.7%. The same load with No. 6 chilled shot averaged 173 hits or 61.8% of its charge. The Western Expert Skeet load of 1 1/4 ounces No. 9 chilled averaged 399 hits or 60.5%. This latter load gave the only "blown" pattern, which came on the second shot, and this one was thrown out of the reckoning. All other patterns were taken as they came and figured in the averages quoted above.

Previous 40-yard averages obtained with the same Federal Oval loads in a 2 3/4-inch chamber with Cutts Compensator were 90% and 86.6%, the difference in the long chamber and standard choke being 24% and 26%, respectively. We would like to try the Cutts Compensator on this new 12-gauge Winchester Model-1912, which muzzle device with the proper choke control should make it a real 60-yard outfit with 1 3/8 ounces of No. 4 chilled shot. That added 1/8-ounce means 20 extra pellets, 70% of both loads indicating 147 hits for 1 3/8 ounces against 133 hits for 1 1/4 ounces.

This new Model-1912 is the big brother of the M-42 .410-gauge repeater, also brought out by Winchester and also chambered for 3-inch loads. The 3/4-ounce Super-X load containing 305 No. 8 chilled shot gave us our very best .410-gauge

average, 195 hits and 63%, at 40 yards. With No. 5 shot that full-choke performance would mean only 84 hits, assuming it would do 65% with the larger shot. That same .410-gauge placed 80% of its load in 14 inches at 20 yards.

Barr tried the Model-12 Heavy Duck Gun on an upland hunt and had no trouble with the action. The only feature he found objectionable was the 8 1/2-pound weight. With the 3-inch Super Speed loads of No. 5 chilled shot, he killed cottontails and ruffed grouse, shooting through fairly dense brush. Up to forty yards he found that extra 1/8-ounce of shot an advantage, as it seemed to very effectively overcome any handicap offered by intervening brush. He fired 10 shots and bagged half-a-dozen head of game. We had treated the bore with Aquadag, but it leaded at both breech and muzzle. However, these streaks came out easily with Hoppe's No. 9 and Hoppe's new 7-inch patches on the Tomlinson wire-gauze cleaner.

Later, to see how many hits the combination would give on small targets, Barr put up cards and fired 3 shots at each of several different distances. On a target containing about 2 1/2 3-inch squares, or about the size of a small duck's body, we obtained the following results with 1 3/8 ounces of No. 5 chilled shot.

45 yards. None to nine hits with an average of 3.83 hits for six targets.

50 yards. One to four hits, or a mean of 2.33 hits for six targets.

55 yards. None to five hits, or an average of 2.5 hits for six targets.

60 yards. None to three hits for an average of 1.5 hits on six targets.

65 yards. None to two hits for a mean of 1.16 hits on six targets.

70 yards. None to one hit for an average of 0.33 out of six targets.

80 yards. None to two hits for a mean of 1 hit per target out of four.

These small marks were placed above and below a rectangular card which contained about 15 3-inch squares. Out of three shots at each range these middle cards were hit as follows:

80 yards. 4 to 9 hits, for a mean of 5.66, which is about one hit for every three 3-inch squares.

70 yards. 6 to 8 hits, for a mean of 7.33, or about one hit for every two squares.

65 yards. 7 to 13 hits, for a mean of 9.33 hits.

60 yards. 8 to 13 hits, for a mean of 10.66 hits.

55 yards. 9 to 20 hits, for a mean of 13.66, or nearly one hit per 3-inch square.

50 yards. 10 to 25 hits, for a mean of 15.33, or fully one hit per square.

45 yards. 23 to 31 hits, for a mean of 27, or nearly two hits per 3-inch square.

In this final test Barr had considerable trouble with the action, which was consistent with our earlier experience when trying to shoot doubles with this particular sample. Previous to this final shooting we had again swabbed the bore with Aquadag. This time very little lead-in developed. There were a few short streaks at the breech and none at the muzzle. Again this lead was easily removed with Hoppe's outfit and the Tomlinson cleaner.

WESTCHESTER WOODSMAN STOCKS

BILL TRULL of Westchester Trading Post finally got those special stocks for the Colt Woodsman sent on to us for test. They are of handsome walnut, well checkered and very well made. The right-side stock has a flare at the bottom which forms a concave rest for the bottom edge of the palm below the extreme bottom of the frame. This provides plenty of depth for broad hands which find the regular Colt handle too short on this pistol. The concave also furnishes a hollow of comfort and confidence and security which means much in pistol shooting. This is particularly apparent in rapid-fire shooting.

The left-side stock is of normal length and ends at the bottom of the frame to allow access to the magazine catch for loading requirements. At the top is a flare for a thumb rest. It is a very good one and many shooters will like it as is. However, others, including yours truly, would prefer the slope more nearly vertical. That is to say the near edge at the heel of the thumb should be lower, while the forward end or top of the slope should be higher. There is a limit, of course, imposed by the necessity of clearing the safety which is on the left side of the Woodsman. However, in the design of the sample stock this limit is merely approached and not reached.

The top of the other stock is very high and somewhat full under the trigger finger. This will be appreciated by most shooters, I believe, because it will tend to force a direct-back trigger press by the tip or first joint of the index finger. Such a press is less likely to deflect or adversely affect the alignment than any other kind of trigger squeeze. Those shooters who, like myself, have a short trigger reach will not like so much wood under their trigger finger, but this may be easily dressed down to suit their requirements.

This Westchester grip strikes me as being an ideal one for the full-length heavy-barrel Hi-Standard Model-B pistol, for the old Model-10 Stevens, for the S. & W. Straightline and for the full-length Colt Woodsman with Eric Johnson heavy barrel of the Hi-Standard weight, which latter barrel is superior to the Colt in muzzlehang or balance.

These beliefs are founded on our experience with these Westchester stocks on a 4½-inch Pocket Model Woodsman. Even on this short gun, for which they are poorly adapted, they gave some promise of their real worth. Other unfavorable factors were the rounded pocket-type front sight, the light short barrel with no muzzle weight, the heavy pull (nearly four pounds) and our short trigger reach. Even so, they bested our own revamped stocks on this pocket pistol by a few points at 50 yards, slow fire, and by four to nine points per rapid-fire score at 25 yards. While these big overgrown stocks are out of place on a short pocket gun, we like 'em for the regular models as mentioned above. On the 25-foot target, rapid fire and slow fire, using both types of grips we picked up 16 points, over a 30-shot course, with the Westchester grip.

ON MYRTLE WOOD STOCKS

THE "Myrtle" as popularly known here in the eastern states is a shrub or bush scarcely large enough for making gun stocks. However, a Myrtle wood tree which grows in Oregon produces timbers as large as four feet thick. Oregon Myrtle has been known to attain a thickness as great as seven feet at the butt. It may be a form of California Lark. It is an evergreen with oval-shaped leaves and small cream-colored flowers which bloom in February. The acorn-size walnut-like nuts ripen in the fall.

The wood has the weight and density and strength and finishing qualities of walnut wood. It is used for all purposes common to walnut. The shade varies from deep maple to light walnut. The grain and dark streaks and markings are sometimes as black as ebony. This figuring varies greatly. Some pieces resemble Birdseye maple and curly birch and others seem more like Circassian walnut. The successive dark and light waves or bands of "tiger flame" maple are common. The wood darkens with age.

Beauty is what beauty does, of course, but most viewers think well-selected and well-finished Myrtle wood is very beautiful. Some may not agree, but even this minority admits a finished stock of selected Myrtle wood is very striking to say the least. Anyone who wants to attract attention to an exhibition arm has only to stock it with a select piece of Oregon Myrtle wood.

Finished Myrtle wood of fancy grade must be seen to be properly appreciated. Even a good clear photograph will not show all the shades and markings or any of the color, yellow usually predominating. The Myrtle wood blank is harder to inlet than a walnut blank, because the grain changes direction so frequently in a given length or area. However, it is probably as strong as walnut in withstand-

ing strains. It is, everything considered, a very satisfactory substitute for walnut for fancy gun stocks.

D. H. Mosher of Salem, Oregon, has specialized in Myrtle wood stocks and has been selling blanks of this wood for the past ten years. Eight or nine years ago I paid him about seven dollars for a Myrtle wood blank. I still have it in its original shape. It has been stored in basements, cellars, closets and attics these several years without warping or checking.

Recently I received from him a finished Myrtle wood stock for the Krag. It is very well shaped and I am greatly pleased with the dimensions, as well as with the appearance. It is an unusually light piece of wood and light in color. The dark brown grain or markings in outline form a dense pattern of whorls and curls against the reddish-maple shade of its general color. It is beautiful to some eyes and striking to all. A couple of years ago E. H. Hoffman, local gunsmith, stocked his M-1917 rifle with Myrtle wood, using one of these Mosher blanks, and it attracted much attention. Several prominent shooters throughout the country have Myrtle wood stocks on pet arms, and apparently they all are more than pleased with them.

Mosher says exporters pay as high as eight cents a pound for fancy burled logs. Such timber grows in rough, sparsely settled country, almost devoid of roads or sawmills, and consequently handling is very expensive. He mentions a shipment of 75 carloads to Europe one year by said exporters.

Mosher charges from \$5.00 to \$7.50 for standard quality Myrtle blanks. His fancy quality blanks cost \$10.00, while "Extra fancy" stuff may be had for \$15.00, or more. These latter are the exceptionally beautiful and uncommonly well-figured pieces which are found but rarely and only through careful culling of much wood. Mosher can furnish machine-inletted blanks at \$5.00 extra to the price quoted above, or completely finished sporter stocks at \$12.50 and higher. He can also quote on blanks or stocks of walnut, Curly Maple or Birdseye Maple.

BOSER'S HANDGUN DOPE

IN 1934 Gordon C. Boser, Springville, N. Y., had R. F. Sedgley convert a .41 Colt Lightning model revolver to .22 caliber, and obtained a beautiful job. This has become his pet handgun, especially for small-game shooting. Boser claims for this gun 48 squirrels and 5 cottontails in its first season. It is a miniature S. A. Colt, which suits Boser so well he has outshot all former favorites with it. He reported 7 hits out of 10 shots on a 5-gallon can at 100 yards with it. He called

it the result of a 20-year search for an ideal. His pet game load was hollow point U. S. Copperhead Speedsters.

The BB Cap ammunition was tried in this revolver on ground squirrels, and it "bowled them over" regularly, and "sometimes knocked them for a foot." The CB Caps were not as accurate in this revolver, but the BB Caps were exceptionally accurate, shooting "like a rifle" in this arm. Super-X hollow point was well liked for killing effect on game, and was found the most effective load at the longer handgun ranges. The best all-around small-game load was the R. A. Sharp-Shoulder Hi-Speed. It fairly blew red squirrels in two on paunch hits, and took the head off on neck and head hits. It was as effective as Super-X hollow point at short range, and more accurate, and gave no extraction or other cylinder trouble due to swelled cases as the other high-velocity loads did. The Sharp-Shoulder load would not equal the Super-X H. P. in soap, but on chucks the former hit a "sledge hammer" blow which pushed or bowled over the game. The Super-X H. P. was very effective on neck shots, nearly decapitating chucks so hit.

Early in 1935 Boser obtained the new heavy model S. & W. .22-32 revolver with recessed chambers, and 4-inch barrel. All loads were tried at 20 yards with Klean-bore leading with scores of 92 and 96. Boser calls it the best standard .22 revolver, next to his Sedgley Frontier job.

On July 25, 1935 he tried an S. & W. Perfect Model No. 7077 with 10-inch barrel and skeleton shoulder stock, equipped with U-notch rear sight and a 3/32-inch gold bead from an M-1892 Winchester carbine. This gun was tried with different brands of .22 Long Rifle ammunition from 50 feet sitting on the N. R. A. target with the following results (for open sights as used sitting even the largest group is good):

Type	Group	Score
Lubaloy	3/4"	48
Filmkote	11/16"	43
Staynless	7/16"	45
Kleanbore	5/16"	32
Super-Match	1/2"	42
Sharp Shoulder	1"	44
Self Cleaning	1 1/4"	34

Boser prefers the .22 Rim Fire to handloads in larger bores in his handgun work. His tastes go to short, compact guns, like the 7.65-mm. Luger with 3 3/4-inch barrel. He also did well with a .38 Colt Pocket Model Pistol with 4 1/2-inch barrel. Using the U. S. 130-grain open point cartridge on three trips he anchored 7 chucks at distances between 20 feet and 30 yards. For power another favorite has been the .32-20-caliber Smith & Wesson revolver with 5-inch barrel. The .45 Colt S. A. with 4 3/4-inch barrel was also a favorite, but was too bulky for pocket use. Hence

the .38 Colt Pocket Model pistol was favored to permit dispensing with the holster on rifle trips.

In the Spring of 1935 some long-range tests were made with various autoloading pistols. Three shooters tried the bottom of a barrel at 100 yards (diameter of target about 20 inches). Results were as follows:

.45 A. C. P.	Super .38	.30 Luger
no hits	5 hits	4 hits
1 hit	4 hits	8 hits
2 hits	3 hits	11 hits

Boser is very partial to the .30 Luger with short barrel for his own use. He has killed crows, owls, hawks, squirrels and chucks with it, and finds it a better killer on small game than the .35 Luger, and its flatter trajectory better adapts it for field hits over unknown distances or the longer ranges than any other handgun caliber. The soft point bullet expands well on game, and outclasses the .45 A. C. P. 200-grain m.c. bullet in penetration, but is inferior in this respect to the Super .38 Colt.

Questions and Answers ON A SPECIAL .30-'06 LOAD

MR. F. C. NESS of the National Rifle Association, asked me to write you concerning a special 220-grain full metal cased bullet which we manufacture, designed for extreme penetration on very heavy game.

The bullet is different from anything on the market today in this caliber. I am sending you one separately. The jacket is just as thick as we could make it and still form it and the core is as hard as we can possibly alloy lead. This bullet was designed by Gen. J. A. Considine, whom I presume of course you know, or know of, and Col. Theodore Roosevelt, Jr. It was designed specially, as above stated, for deep penetration, and there are any number of instances on record in our files here where it has gone clear through gaur, sladang, and similar heavy animals from brisket to rump and without diving off the course.

The cartridges loaded with these bullets are supplied direct from this office only, and it would be necessary, therefore, for you to let me have your requirements and to preferably make arrangements with some one coming to the islands who could bring what you desire with them as baggage rather than attempt to ship them. The price would be \$90.00 per M net f. o. b. East Alton. We would pack the cartridges 40 to a sealed tin container which can be opened and resealed again very readily. The ballistics of the cartridges are the same as for the 220-grain Soft Point as shown in the hand book being sent you under separate cover. Your check should be made payable to the Western Cartridge Company and shipping instructions given.—ROY F. RIGGS.

NEW LEVER-ACTION COMING

TO BE reviewed next month, a new hunting rifle with improved action, sling, modern stock and peep sights; caliber .348, apparently a rimmed form of .35 Remington.

.45 A. C. P. LOADS IN THE M-1917 REVOLVER

WE AGREE with George T. Scheid, Lima, Ohio, that it is better to increase the weight of bullet, rather than the weight of charge when the impact of gallery loads is too low for zero with a revolver which has fixed sights. His experiments with handloads in the M-1917 revolver bear this out. He used fired .45 A. C. P. cases of many different makes, resized to fit his chambers. F. A. pistol primers and Pistol Powder No. 5 were used in all loads and bullets of .453-inch diameter. The zero for center impact in the bullseye was 1 1/2 inches above aim at 10 yards.

The 207-grain Ideal Bullet No. 457127 in 1918 cases gave the following impacts:

3.0 grs.	7" low	poor group
3.5 grs.	6" low	better group
4.5 grs.	1 1/2" low	fair group
5.0 grs.	1 1/2" low	fair group

The charge was increased to 5.3 grains, but made the S. & W. grip uncomfortable. The heavier Ideal Bullet No. 454190 was then tried, beginning with 2.5 grains powder and increased to 4 grains, which brought the impact from too low to 2 3/4 inches high at 10 yards. Then the nose of the bullet was cut off to make it a flat-end wadcutter and due to the loss in weight the impact was 2 3/4 inches low, even with 4 grains powder. This group measured 1 1/4 inches against about 1 inch for the full-weight 260-grain bullet with the same charge. The best group with the 207-grain bullet was 7/8 inch with 4.5 grains.

ON CARRYING THE S.-A. COLT SAFELY

J. P. COMSTOCK, Tacoma, Washington, has carried his 44-40 Single-Action Colt for years in the Cascades, Rockies and Selkirks on prospecting trips and in mining. He has had only one failure with it and that was a broken bolt-and-sear spring which let go on a frosty morning. He has seen a guard killed by his own Single-Action on account of carrying it fully loaded and allowing it to slip out of its holster while stooping.

To guard against this, with all six chambers loaded, Comstock lets the S.-A. hammer down on the cylinder between two chambers and recommends this practice as a safety precaution. It is done by turning the cylinder with the left hand while drawing back the trigger and partially drawing back the hammer with the other hand. The alternative safety method is to load only five chambers and, of course, let the S.-A. hammer down on the empty chamber.

HEAVY HANDGUN LOADS

THE writer is interested in getting more velocity from his 44 Special Colt revolver. Hercules Unique has been recommended by several of my friends, but my past experience has been that Unique was very erosive, also very hard to clean out after shooting.

I would be pleased to hear if this powder has been changed in the last two years to overcome the above mentioned. Also, if possible, give charges to get maximum velocity with the Keith-Ideal 235-grain bullet.—W. G. S.

Answer: The Hercules Powder Company does not recommend revolver loads develop-

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ing over 15,000 pounds pressure. Such a load in the .44 Special, behind the 235-grain bullet, would be 8.1 grains weight Hercules Unique developing 1005 f.-s. and 15,000 pounds pressure, with a seating depth of .346 inch. With the 240-grain bullet seated .355 inch, but with hollow base, 8.8 grains weight Unique can be used, developing 1035 f.-s. at 15,000 pounds pressure. A powder charge which is pretty well liked behind the Keith bullet in the .44 Special is 18.5 grains weight Hercules No. 2400 Rifle Powder. The extreme load which develops very high pressure is 21.5 grains weight, so that I think you could use 18.5 grains weight with safety. I have used as much as 22 grains weight of this powder in the .45 Colt behind my hollow-base wadcutter bullet, made for me by Modern-Bond, in a modern Smith & Wesson Revolver, .45 Colt caliber. However, as an extreme load, I do not recommend over 21 grains of this powder. The trouble with No. 2400 is that it does not burn well until you get pressure up above 20,000 pounds, and that is perhaps higher than you want to go. For between 15,000 pounds and 22,000 pounds Hercules Unique would be best. It is not particularly erosive or hard to clean from my experience, and there has been no recent change in this powder, except to cut the cost in half.

ON POCKET GUNS

I WOULD appreciate your advice on choosing a pocket gun. I am considering Colt .38 Detective Special, Colt Pocket Positive .32 Long on a cut-down S. & W. 1917. I want a gun I can slip into a coat pocket, without undue bulk, but powerful enough to be effective.

I incline to the Detective Special, but feel it is rather light. What do you think of it with Roper stocks? Would it be accurate and pleasant to shoot? What do you use for a pocket gun?—P. L. H.

Answer: I would not care for Roper stocks on a pocket gun, which should have very small stocks, as well as a short barrel, and as smooth outline as possible. The only thing I do not like about the Detective Special is the short barrel, and would prefer it with 3¼-inch or 4-inch barrel. This would apply

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L. W. HOWLAND

3931 Montgomery Ave.

Norwood, Ohio

to the Colt Pocket Positive. The Detective Special is too short with 2-inch barrel for comfortable shooting as the muzzle blast is very unpleasant. However, I would prefer the .38 Special caliber in a similar revolver with small grip and longer barrel, and I would use the 158-grain full-charge wadcutter as loaded by Western and Peters.

The M-1917 S. & W. revolver would be excellent, but it is entirely too bulky in cylinder, barrel and grip.

USEFUL .38-SPECIAL LOADS

I PLAN to do some handloading for my .38-44 S. & W. revolver and would like some information on powder charges.

I intend to use the Ideal No. 360271, 150-grain bullet and would like three different loads, that is, if they are practical. First would be a load for indoor target practice at 50 feet, then one for outdoor practice at 50 yards, and third a conservative maximum load for this bullet and revolver.

Would you give me your recommendations for the proper powder and charges for the above conditions. Also, to what diameter

should I size the bullets for the .38-44? And to what depth should they be seated?—C.J.L.

Answer: The proper gallery loads for Ideal Bullet No. 360271 in the .38-44 S. & W. revolver, like the Heavy Duty or Outdoorsman, is 3.3 grains weight Hercules Bullseye,

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or 4.6 grains weight Pistol Powder No. 5. These loads will develop standard factory ballistics. If you want a lighter gallery load, 2.0 grains weight Bullseye would be best. If you want a heavier field load developing 1000 f.-s., use 5.4 grains weight Hercules Unique. Usually there is a crimping groove provided on any handgun bullet to indicate

flat top aiming post long after the wide peep and open sights were useless.

DROP AND TRAJECTORY

I HAVE recently purchased through the D. C. M. one Enfield, Model-1917, 30-caliber rifle, by Winchester and in excellent condition.

I tested this rifle using battle sight at 100 feet—longer range not available. Twenty shots were fired, using service ammunition and regulation "A" target, by two men. At this distance all shots were grouped at 6 o'clock but about 14 inches below the bull. Can you explain the reason for this drop at such a short distance? Shots were fired prone and held steady.

Does the rifling differ from the Springfield, and would such a condition cause the bullet to drop before rising in trajectory?

I intend to change the sights on this rifle for sporting purposes and would appreciate your recommendation of a text covering the necessary operations to accomplish this.—J. M. R.

Answer: I am sending you some literature covering remodeling of the M-1917 rifle, which I trust will serve your purpose. About 11 different heights of front sights were used in making these rifles to obtain proper zero. You may have a front sight which is too high and before you change it, I would suggest filing it down until you get the proper zero, so that you will know what height of front sight to purchase later. The lowest front sight used on the M-1917 was .985 inch and the highest 1.135 inch. The difference is .153 inch in height. On the 30-inch sighting radius of this rifle a change of .10 inch in front sight height would change the impact 12 inches at 100 yards, and .150 inch difference should change it 18 inches or 18 minutes. At 1/2 the range, or 100 feet, it would still be 18 minutes, but the minute of angle would be worth only 1/3 of 1.047 or about 6 1/2 inches at 100 feet. Therefore, if you are using the highest front sight and should change to the lowest available front sight, you would raise your impact only 6 1/2 inches, and it would still be nearly 8 inches low relative to the point of aim at that distance.

The bullet drop is constant with any gun, because it is determined solely by the pull of gravity which is constant. This holds true from the weakest air rifle to the most powerful cannon or ordnance equipment. The bullet begins to drop the moment it emerges at the muzzle and continues to drop faster and faster as the range increases. This gives the regular curved flight, known as the "trajectory." The sight alignment is another thing as this is used to give the barrel an angle, usually above the sight line, causing the trajectory to cut through the line of sight from below, although it is constantly below the line of bore itself. Also when firing the barrel does not remain in normal position but whips more or less violently so that the explanation for your trouble is that your barrel must discharge its bullet at the lowest dip of the muzzle while being fired. If you want to determine this, you could do so by using a different load or by cutting off an inch or two at the muzzle. If you do this you could fit the Model-1903 Springfield front sight band.

The rifling in the M-1917 bore is left hand instead of right hand as in the Springfield. Therefore, if there is any yaw, or drift, due to the circular motion of the spinning bullet, it would be to the left instead of to the right as in firing the Springfield.

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seating depth. If your cylinder permits it, seat it out one more band and crimp in the next groove, but you may find this makes an overall too great for your chamber, which must be your final determination. The standard seating depth of this bullet is .35 inch making an overall cartridge length of 1.45 inches.

SCOPE SIGHTS FOR OFFHAND

I HAVE a heavy barrel 52 equipped with Lyman 10X scope and have been doing my target practicing with this outfit with a dead center hold on the bullseye.

Recently I was out and after sundown in my offhand work it soon became so dark I could not locate the cross-hairs in the black with the result that my offhand scores went off badly, and I am writing you if a person should learn to hold at six o'clock with a telescope as powerful as this, as the cross-hairs show up better against the edge of the white this way. How do the real shots do it? I am the only one in our gun club that has tried scope shooting enough to get any proficiency and have never had the opportunity to find out which way of holding is correct.—B.G.R.

Answer: I would consider the 10X too great in magnification for offhand shooting, and also the cross-hairs are not as well adapted for this purpose as a flat top aiming post. The very best type of scope for offhand shooting is a 3X with fine flat top aiming post.

With your 10X target scope, which preferably should have been in 8X for general use, you will have to make the best of things and I believe your plan of holding at 6 o'clock on the black would be very practicable, of course requiring a higher elevation of the rear mount which is easily done with the modern Lyman 5A target mounts.

For rest positions medium-fine or fine cross-hair reticules are superior in high-power target scopes for target shooting, but for use in offhand position, and especially in poor light as late in the evening, the coarse cross-hairs are superior, and best of all is a flat top aiming post for this particular purpose, which is one thing which makes it superior for hunting. Last summer we frequently had to quit using our medium-power target scopes with medium-fine cross-hairs, late in the evening, but could continue to use our 3X hunting scopes equipped with



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NEW ITHACA 12-32", full, modified, automatic ejector, pad, sights, \$40.00. 30-30 **Savage**, handmade stock fore-end, \$30.00. 8x10 view camera leather bellows f-6 lens, everything for finishing, cost \$150.00, will sell or trade for guns valued at \$50.00. Write itemized list. J. Magill, Red Lake Falls, Minn. 1-36

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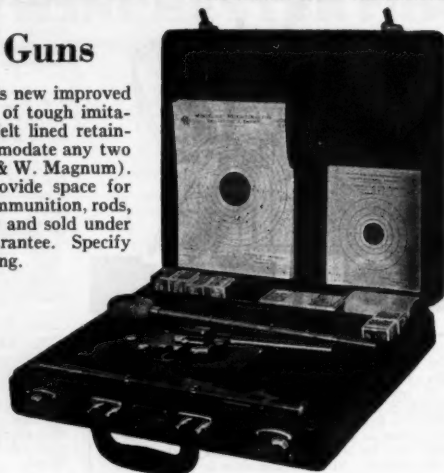
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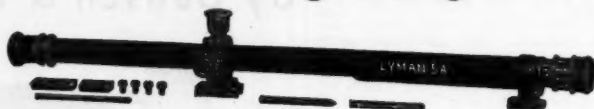
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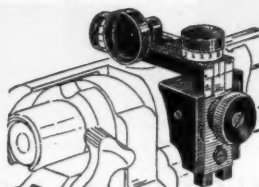
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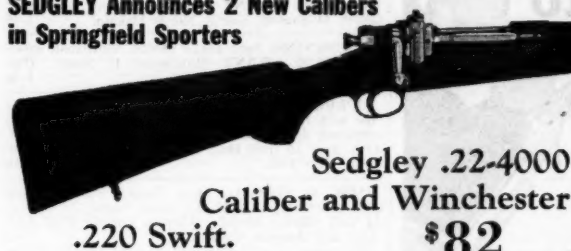
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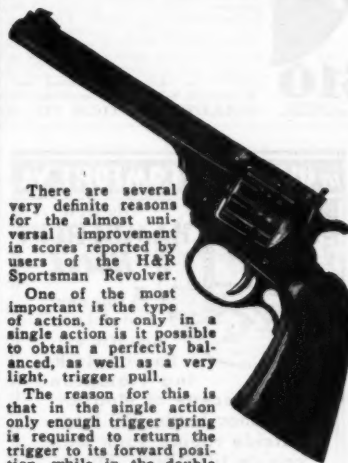
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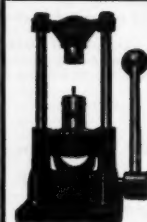
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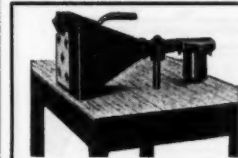
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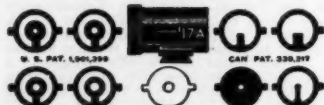
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BLUE RIBBON GUN BLUER, gives excellent results with ordinary hot hydrant water. Satisfaction guaranteed. Half pint, 75¢. Pint, \$1.25. Robert Woerner, 5829 Saul St., Philadelphia, Penna. 1-36

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REVOLVERS AND HANDY GUNS converted to 22 L. R. Colt's S.A., \$14.00. Ejector type revolvers, \$18.00. Guaranteed precision workmanship. **NEW ADDRESS:** Le. Worthley, Route 1, Box 439, Visalia, Calif. 1-36

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CHECKING TOOLS for amateur or gunsmith. Hand made of hardened drill-rod steel with handles. Complete set of three tools. \$3.50. Specify width. A. C. Hoefert, Box 2083, Billings, Mont. 1-36

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BLACK WALNUT and Maple Gunstock Blanks. Reasonable. State length and thickness wanted. Write for prices. John Reize, 8152 Cornell Ave., Chicago, Ill. 1-36

BATTERED oil soaked stocks and revolver grips refinished, rechecked like new, \$1.00 to \$8.00. R. Singer, 1008 Dewey, Evanston, Ill. 1-36

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MUZZLE LOADERS AND ACCESSORIES. Squirrel, mid-range and long range rifles, powder horns, powders and caps, ramrods, wad and patch cutters, percussion locks, trigger sets, nipples and wrenches. Give drawings or dimensions when ordering locks and nipples. Explain your problems, ask for prices. Ten (10) gun-fints for \$1.00. E. M. Farris, Portsmouth, Ohio. 1-36

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WOLLENSAK RIFLESCOPE \$9.00 POSTPAID. Mossberg scope, \$6.75 postpaid. Save on others. Zeppelin Arms Co., East Akron, Ohio. 1-36

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WARNER & SWASEY SIGHTS rebuilt into modern scope, good light, good definition, good workmanship, 5 or 7 power. Your sight and \$15.00. H. W. & F. Loney, Harding Road, Elkhart, Ind. 1-36

BAUSCH & LOMB Spotting Scopes. Draw Tube, \$27.00. Prismatic, \$49.50. Shipped prepaid. Ker. Hellyer, Shooters' Accessories, 2101 Castilian Drive, Hollywood, California. 1-36

\$17.50 VAVER EXTENSION SIGHT, \$11.50 and your 48j in good condition. Zeppelin Arms Co., East Akron, Ohio. 1-36

\$15.00 FRENCH PRISMATIC BINOCULARS, 8-power, center wheel adjustment with leather case. Cost \$45.00. Guaranteed. Big selection telescopes, binoculars, field glasses and firearms. Write for list. Weill's Curiosity Shop, 20 S. 2nd St., Philadelphia, Pa. 1-36

RIFLE TELESCOPES for hunting and target; high in quality, low in price. Send for catalog. Malcolm Rifle Telescope Co., Auburn, N. Y. 4-36

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ACCESSORIES

UNIVERSAL SCOPE STAND for rifle and pistol shooters. Post card for prices and information. Loder & Wilson, 1014 Cherry St., Erie, Pa. tf

LIBERAL SAMPLE ASSORTMENT basement rifle and pistol targets, quarter. Zeppelin Arms Company, Dept. 15, East Akron, Ohio. tf

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U. S. ARMY leather rifle slings, new, 65¢, used, 25¢. One piece 30 cal. cleaning rods, 50¢. Leather holsters 38 and 45 cal., slightly used, 50¢. Prepaid. Lucke-Kiffe Co., 523 Broadway, N. Y. C. 1-36

IMPROVE YOUR RIFLE AND REVOLVER SHOOTING WITH THE APERTURE PATCH. No special glasses. Slips on spectacles or glasses instantly. Sharpens both sights and target. Wear while hunting. Wonderful help to older eyes in target shooting. Price one dollar. For literature address: F. E. Burgess, Melrose Park, Philadelphia, Penna. 1-36

FANCY Pistol Grip Caps, 30¢ and up. Butt Pads, 60¢ and up. All kinds of stock trimmings and gunsmiths tools. Liberal discount to Gunsmiths. Shooters Specialty Co., Box 792, Butler, Penna. 1-36

KNIVES made to order, handles rebladed, hunting knives a specialty, all work guaranteed. Imperfect knives replaced. W. N. Greene, North Tyler St., North Topeka, Kansas. 1-36

CASWELL TARGET CARRIERS for all types of indoor shooting galleries. Priced from \$12.50 to \$27.50. Send 10¢ for descriptive literature and gallery construction details. Caswell Shooting Gallery Equipment Co., Anoka, Minn. 3-36

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YOUR KEEPER'S KEEPER. At your dealer or direct, 25¢, postpaid. G. Norman Albree, 110 Milk Street, Boston, Mass. 1-36

ATTENTION! Pistol and Revolver Shooters. Complete line of Gadgets. Handmade to order Holsters. Reloading Supplies, Bullets, Cleaning Supplies, Steel Pistol Rods. Thirty-eight Special Ammunition Handloaded to your order. Colt and Smith & Wesson Arms. Prompt Service. Thomas C. (Tex) Wilson Company, 1514 Main Street, Dallas, Texas. 1-36

OWING TO INCREASED COSTS we are forced to raise the price of our R200 Rifleman's Jacket. Orders received before February first will be filled at the old price of \$4.25 postpaid. On and after that date the price will be \$4.65. Suval Products Co., 3 Perry St., Binghamton, N. Y. 1-36

BE WISE—HARTMANIZE!! Economical products of proven worth. **BEST Gun Grease** Known, 8 ounce jar, \$1.00. Clear, light, **SPERM OIL, WON'T GUM**. Try it! 4 ounces, 75¢. **STOCK REFINISHING KIT**, containing: Boiled and Raw Linseed Oil, Garnet papers, Steel Wool, Burlap, Oxalic, Fillers, Rottenstone, Felt and INSTRUCTIONS. Plenty of each. **SAVES RUNNING AROUND. COMPLETE**, \$2.75. Linseed alone, TWO bottles, 6 ounces each, Raw & Boiled, **LIGHT or DARK**, \$1.00. **SOMETHING NEW!!** Patches already GREASED! ONE patch will grease your bore as never before! **NOTHING LIKE THEM!** 22 and 30 cal. square, 50 for 65¢. Dry Patches, Square, **BEST BLEACHED Rannel**, .22, 300 for 75¢; .30, 200 for 50¢. Aluminum Schuetzen Type buttplates, **ROUGH finish**, send diagram, \$1.00. **EVERYTHING MONEY BACK**. First TWO orders absolutely **FREE!!** Floyd Hartman, 212 Franklin Street, Buffalo, N. Y. 1-36

"SLIP-ON" GRIP ADAPTOR for revolvers, \$1.00. Free Folder. Ordnance Service, 165 East 32nd Street, New York, N. Y. 1-36

PEARL, IVORY AND STAG STOCKS, at closeout prices. Send stamp for list. 7 Cent Market Place, N. Y. City. 1-36

STAM ADJUSTABLE height cushion-rubber cheek rest for rifles, shotguns. Improves off-hand scores. Description November Dope Bag, \$2.00, postpaid. Richard Stam, 52 Presque St., Rochester, N. Y. 1-36

GENUINE U. S. ARMY LIVE LEATHER SLINGS, new, 1/4" postpaid, 85¢ each. Hudson, R-52 Warren Street, New York. 1-36

COMPLETE STOCK—Vaver Sights and Accessories, Wollensak Scopes, 10% discount. B&L Draw with sheepshead case, \$27.00. **START THE NEW YEAR RIGHT—Get a Badger Shooting kit**, \$4.75 and \$9.45. Badger Shooters Supply, Owen, Wis. 1-36

ANTIQUES & CURIOS

WORLD WAR RELICS and Colt latest model Automatic pistols and revolvers in new condition, at bargain prices to close out. Stephen Van Rensselaer, Williamsburg, Va. 1-36

5 PERFECT FLINT ARROWHEADS, 20¢. 4 perfect Flint birdpoints, 20¢. 30 different natural minerals, \$1.00. Curios and pistols. Catalogue, 5¢. Lemley Curio Store, Northbranch, Kans. tf

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ANTIQUE ARMS bought, sold, exchanged. Colts of any period wanted, particularly engraved models and those with ivory grips. Lists available. Stephen Van Rensselaer, Williamsburg, Va. 5-36

WORLD WAR RELICS for club house or den. Vickers Aircraft Machine Gun, cost Government \$700.00. Rendered unserviceable without marring; weighs 33 lbs. Send M. O., check or Draft for \$7.75, f.o.b. N. Y.; C.O.D. orders, \$1.00 deposit. Fiala Outfits, 10A Warren St., New York City. 12-36

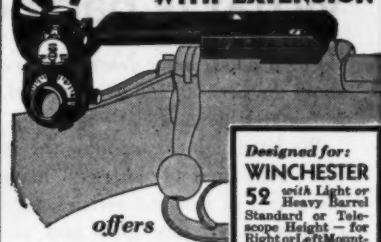
SEND FIVE CENTS FOR NEW LIST of Antique Firearms. No Modern Arms listed. Will buy and trade for old arms. W. Linas, 821 Venneman Ave., Kirkwood, Mo. 1-36

WANTED—Antique Firearms, good prices paid for single pieces or collections. Large selection always in stock. Write your wants. J. & I. Boffin, 5223 Drexel, Chicago, Illinois. 1-36

MISCELLANEOUS

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Vaver MICROMETER DIAL SIGHTS WITH EXTENSION



Absolute Accuracy in Target Shooting

A New Principle in Sights—**Frustrates Conical Spiral Lead Operation**—makes possible positive micrometer adjustments for elevation and windage, eliminates all backlash and wear.

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Vaver HUNTING SIGHTS

For Springfield '06, Winchester 54, Remingtons, Mauser, Krag, and other sporting rifles. Everything you want in a hunting sight: Quarter-minute adjustment for elevation and windage, interchangeable scale plate for change of loads, "No Halo" Vaver Multi-Aperture Sighting Discs, rugged construction, moderate price. Ready mounted without cutting stock. See your dealer today or Write for Circular.

Free **WITTEK MFG. CO.** 4308 West 24th Pl., Chicago, Ill.

Watch the RELOADER NEWS

for information about Hercules Rifle, pistol, and shotgun powders.

Sporting Powder Division

HERCULES POWDER COMPANY

980 King Street Wilmington, Delaware

GUN BUGS, ATTENTION!! OUTDOORS Magazine is now running the most complete and comprehensive illustrated series of articles on Reloading ever published in any sporting magazine. This series, in addition to the gun department, is edited by Philip B. Sharpe, Life Member of the N. R. A. All American Rifleman readers sending in only ONE DOLLAR will receive OUTDOORS Magazine for the coming full year—twelve copies crammed from buttplate to muzzle with special things of interest to the Sportsman. Your subscription will be entered immediately and at least four back copies containing the reloading series will be sent to you free of charge **WHILE THEY LAST** that you may have them for your files. Clip this ad and mail with \$1.00 for OUTDOORS MAGAZINE, 333 No. Michigan Ave., Chicago, Ill., Dept. N. tf

U. S. ARMY McClellan Saddles, new, \$18.75; slightly used, \$7.50. Saddle Rifle Scabbards, new, \$3.95; used, \$2.65. Brides, used, \$1.75. Prepaid. Catalog free. Lucke-Kiffe Co., 523 Broadway, N. Y. C. 1-36

PATENTS

PATENTS—Low cost. Easy terms. Book and information free. Highest references. L. F. Randolph, Dept. 370, 724 9th St., Washington, D. C. tf

What is back of your N. R. A. Membership?

For a good many years we have been telling folks about the benefits and privileges of membership in the National Rifle Association.

We have pointed out how the good old RIFLEMAN, like a visit from an old friend, brings them each month the cream of firearms articles, together with unbiased reports on all new guns and cartridges. We have stressed the value of N. R. A. Technical Service, a service that saves members money, time and disappointment; the opportunity to win gold, silver and bronze medals at home by participating in the N. R. A. program of home range rifle and pistol matches; the unusual privilege enjoyed by members only of purchasing the Springfield or Enfield Service rifle (and Service ammunition) direct from the War Department.

We have explained how the N. R. A. looks after the interests of members in Congress and State Legislatures; how, for example, the Association last year and the year before pointed out to Congress the folly of enacting the Attorney General's "Federal Sullivan Law," and last year secured the great National Matches after a lapse of three years.

It is a matter of general information that the N. R. A.

during the past year sent a staff of trained men to help conduct important shooting tournaments throughout the country; that during 1935 the junior N. R. A. issued more than 50,000 qualification decorations to boys and girls of America; and that police marksmanship is no longer a joke in hundreds of cities where the N. R. A. police training program has been adopted. In a hundred and one other ways N. R. A. is striving not only to serve American Riflemen *better*, but also to make America—once again—a nation of riflemen.

Most of the sportsmen who read this advertisement know all these things. They have proved the value of membership, have supported the N. R. A.—many of them for years and years. But only a relatively few take advantage of *all* the services the Association is able to render. That is why we again call attention to the N. R. A. Service Program. Remember what is back of your N. R. A. membership. This year get the maximum benefit out of your affiliation.

And remember also that while this summary of what the N. R. A. means to members may be an old story to you, it is money-saving information to the sportsman who is looking for more sport out of his gun at less cost.

{ Help make 1936 another rifle shooting year. Use the blank below if you are not a member. Sign up a sportsman friend if you already are on the roll. }



JOIN THE N. R. A.—

Support the organization that is the only barrier between honest gun owning sportsmen and the anti-gun fanatics.

READ THE RIFLEMAN—

It always features firearms.

MEMBERSHIP: ANNUAL \$3.00—LIFE, \$25.00

NATIONAL RIFLE ASSOCIATION
Barr Building,
Washington, D. C.

1-36

I believe in the aims and purposes of the N. R. A. and desire to support the good work as well as to avail myself of its services to members.

I certify that I am a citizen of the United States over 18 years of age.

Attached is remittance of \$3.00 for annual active membership.

Please send me a membership card, one of the sterling "annual member" lapel buttons, one of the latest price lists and enter my subscription to begin with the next issue.

☐ Please check here if you have previously received literature from the N. R. A.

MY NAME _____ STREET _____

CITY _____ STATE _____ AGE _____

I am glad to recommend the above applicant as a sportsman and citizen of good character.

NAME _____ TITLE _____ OR MEMBER ☐ ANNUAL ☐ LIFE

ADDRESS _____



POWDER PLAYS A BIG PART *in the pattern*

WHATEVER the range . . . you want an even, balanced pattern with no holes for the target to slip through. Several things affect the evenness of pattern but most important of all—the powder.

If powder burns too fast, the shot pellets are deformed by the force of the blow the powder delivers as it starts them out of the shell. The

pellets are further dented as they are pushed through the choke. Thus, unduly deformed they are erratic in their flight and a poor pattern results.

Good patterns are obtained from powder whose rate of burning is evenly controlled. The shot pellets are started on their way with a push that does not crush them. Maximum pressure is developed

after the shot has moved a few inches down the barrel. The pressure has lowered before the pellets pass through the choke and the minimum of deformity is the result.

The development of powders which perform in the most efficient manner under all conditions has been part of the work of the du Pont Company for 133 years.



E. I. du Pont de Nemours & Company, Inc., Sporting Powder Division, Wilmington, Delaware

Yes, Mr. Griffith, Super-Match IS Making Them All Take Notice!

Western Cartridge Company,
East Alton,
Illinois.

Gentlemen:

While at Camp Perry this year my attention was attracted to Western Super-Match ammunition by the performance of other shooters using it. I decided to try some. I was having trouble finding ammunition that would group with a barrel which, by accident, was nearly ruined a few days before. I tried Super-Match and found it gave better results than any other ammunition.

Due to Super-Match consistent accuracy I was able to place in the money in the Peter's Trophy Match at 200 yards, the American Legion Match and the 50 Meter Two-Man Team Match. In some of the other matches I switched back to another brand of ammunition, but was not able to get results.

I coach our Central Y.M.C.A. Rifle Club here in Pittsburgh and was anxious to try this fine ammunition on the indoor range with the idea of recommending its exclusive use by our club.

The targets I am sending speak for themselves. They were shot indoors, 50 feet, prone, iron sights. It was very gratifying to note the consistent close grouping and the fact that the groups stayed in the center for all 20 shots. Not a wild shot in the lot. No sight changes necessary during this entire string. You have developed a very fine, uniform, smokeless cartridge which will make them all sit up and take notice before another indoor season has passed.

Owing to the location of our rifle range we have to use a smokeless cartridge. I find that Western Super-Match meets this requirement. In addition, it is non-fouling and non-rusting. These are desirable features seldom found together with fine accuracy.

Your company is to be commended for incorporating all of these features into one cartridge. I shall continue to shoot and recommend Western Super-Match.

Yours truly,

H. D. Griffith
H. D. GRIFFITH
Coach Y.M.C.A. Rifle Club,
Pittsburgh, Penna.



WESTERN SUPER-MATCH went into the rifles of hundreds of marksmen during the past year, with the same degree of enthusiastic satisfaction expressed here in Mr. Griffith's letter.

SUPER-MATCH performance is *proven* performance! The remarkable accuracy and stability of this cartridge **OUTDOORS** at **ALL RANGES** was proved in the 1935 Camp Perry matches and dozens of others. Its performance **INDOORS** is being proved everywhere during the present indoor season. Accurate! Uniform! **CLEAN**, because it's **SMOKELESS**! A trial in *your* gun may have a lot to do with your success in future matches!

WESTERN CARTRIDGE COMPANY • Dept. A-25, East Alton, Illinois

Western
SUPER MATCH

.22 LONG RIFLE SMOKELESS

Western Cartridge Company, Dept. A-25, East Alton, Illinois

Mail your leaflet and complete details of Western SUPER-MATCH, the SMOKELESS .22 Long Rifle target cartridge.

Name.....Address.....

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